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技 術 訓 練 所 現 況

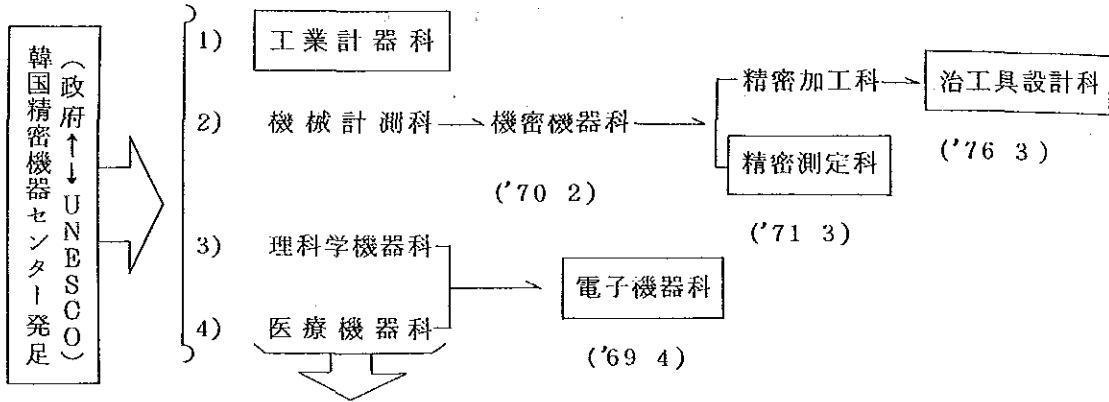
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財団 韓 国 機 械 研 究 所
法人
附設 企 業 技 術 支 援 セ ン タ ー

1. 設置目的

韓国の精密工業振興の為政府とUNESCO間の協定に依り設立された、韓国精機器センターに、技術人養成を目的として2年制正規課程（工業専門大学課程）を設置す。

2. 沿革

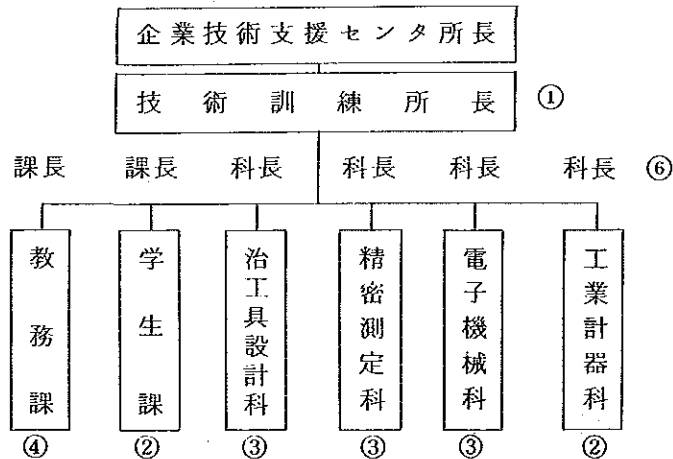


[4 個学科運営 ('66. 9)]
[第 1 期 3 0 名 配 出 ('68. 8)]

* 夜間部新設 → [精密加工科 (治工具設計科) , 精密測定科 , 電子機器科 ('73. 3)]

工業計器科 ('75. 3)

3. 組織及び人員



区分	技術職 (教師)				技 能 職			合計
	責任	先任	員級	計	技術(助教)	行政	計	
定員(名)	1	6	17	24	7	2	9	33

0 0 ② ② ① ②.....行政・助教

4. 学生定員

- ・正規課程（2年制工業専門大学課程）：640名
 - 4個学科×2個学年×2（昼・夜）×40名=640名
- ・短期課程（現場技術者再教育課程）：300名（'86計画人員）
 - 治工具設計技師課程，精密測定士課程
 - 空油圧制御技術課程，工業計器技術課程
 - 課程に依って 1～3週間教育

5. 卒業生（年度別，訓練実績；別添1）

- ・正規課程： 3,187名（'68・8～'86・2）
- ・短期課程： 49,828名（'66～'85）

6. 施設及び装備現況

1) 施設現況

敷地	建物				
	講義室	SEMINAR室	実験室	事務室	計
5,637坪 企業技術支援センター ソウル敷地	300坪 (8室)	30坪 (1室)	590坪 (11室)	115坪 (6室)	1,035坪 (26室)

2) 装備現況（装備内識別添2）

（単位：千WON）

実習室別	数量	金額
一般 治工具製図実習室	Universal Drafting M/C 外61点	12,089
空油圧実習室	Hydraulics Teaching Aids Set 外4点	69,850
精密測定1. 2実習室	Gauge Block Set 外462点	42,544
加工実習室	Hydraulic Copy Milling Machine 外25点	63,355
基礎応用電子及び 電子計算実習室	AC DC Differential 外351点	102,618
工業計器実習室	Torch Lamp 外242点	8,252
計	1,151点	373,708

別 添 1

技 術 訓 練 実 績

1. 正 規 課 程

期別 年度 人員名	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
	期	期	期	期	期	期	期	期	期	期	期	期	期	期	期	期	期	期	期	計
	'68	'70	'71	'72	'73	'74	'75	'76	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86		
学科	30	35	31	52	42	48	160	168	192	249	269	336	271	259	291	248	223	283		3,187
理科学機器科	11	9																		20
医療機器科	5																			5
工業計器科	10	17	11	14	13	18	21	22	21	61	72	73	83	75	75	63	62	77		788
機械計測科	4	7																		19
電子機器科		2	12	21	14	13	47	40	54	62	62	63	54	56	47	40	43	75		705
精密機器科				17	15	17			57											106
精密加工科							41	45												86
精密測定科							51	61	60	66	71	79	62	39	62	62	56	66		735
治工具設計科										60	64	74	72	45	66	45	62	65		553
電子計測科												47		44	41	38				170

2. 短期課程

分野	年度別 課程別	年 度													計	
		66-72	73	74	75	76	77	78	79	80	81	82	83	84		85
機 械 技 術 訓 練	精密加工士	311	269	197	278											1,155
	精密測定士	131	172	184	142	92	126	236	179	57	77	62	67	65	79	1,699
	工程技術経営者				33	20	27	28	20	38						161
	工程設計技師					68	44	91	102	60	65	42		45	35	552
	治工具設計技師					62	76	81	104	56	56	38		47	53	573
	機械検査員					133	61									194
	QC、QA技師						62	52		52						166
	部品検査要員						140	152	90		26					408
	弾薬						30	21	15							66
	工作機械検査要員							34								34
	工作機械生産要員							86	38							124
	技術 Seminar						58	98	263	42						453
	金属試験技師										22					22
	航空機検査要員								30							30
	委託訓練										544	229		109	39	921
	空油圧技術訓練												56	84	104	244
計	442	441	481	453	375	624	866	841	305	796	371	113	350	310	6,762	
電 子 ・ 工 業 計 器 技 術 訓 練	研究開発技師	1,156	269	212	351	377	223	184	172						2,944	
	電子技能士及技師	2,521	278	361	579	307	207	123	140						4,516	
	電気電子検査	731	118	128	396	117	250	203							1,943	
	工業計器	1,323	118	497	166	453	75	99			132	93	112	124	127	3,319
	理学機器	433			47	71	149	70								770
	計量機器		389	248	347	61						128				1,205
	現場巡回教育	4,504	1,596	1,375	1,603	2,779	2,625	1,710	700				10			16,902
	電子通信整備検査要員						30	42	15							87
	Seminar及びその他	8,981	152	265	478	251		520	204	40		100			27	11,380
計	19,649	2,920	3,086	3,967	4,416	3,591	2,951	1,231	402	132	321	122	124	154	43,066	
総計	20,091	3,361	3,567	4,420	4,791	4,215	3,817	2,072	707	922	692	235	474	464	49,828	

別添2 実験室別裝備内訳

Die & Tool Design Room

No.	Nomenclature	Q'TY	Amount (Unit:Won)
1	Universal Drafting Machine	58	9,961,000
2	Lettering Set	1	50,000
3	Blue Printer	2	1,440,000
4	Drafting Machine for Blackboard	1	638,000
	TOTAL	62	12,089,000

Pneumatics & Hydraulics Lab.

No.	Nomenclature	Q'TY	Amount (Unit:Won)
1	Hydraulics Teaching Aids Set	1	8,449,512
2	Hydraulics Practice Unit	1	24,649,313
3	Pneumatics Teaching Aids Set	1	4,284,170
4	Pneumatics Construction Set	1	10,982,017
5	Pneumatic Valve Set	1	2,484,942
	TOTAL	5	46,849,954

Precision Measuring Lab.

No.	Nomenclature	Q'TY	Amount (Unit:Won)
1	Gauge Block Set	37	5,537,153
2	Micrometer	109	5,396,134
3	Vernier Calipers	30	424,808
4	Calliper Checker	2	506,853
5	Cylinder Gauge	16	536,495
6	Dial Gauge	54	799,375
7	Dial Gauge Stand	8	160,655
8	Dial Gauge Calibration Tester	4	7,331,810
9	Test Indicator	47	939,197
10	Micron Indicator	1	1,258,090
11	Height Gauge	25	1,147,527
12	Height Master	4	1,107,783
13	Optical Flat	5	187,089
14	Optical Parallel	5	98,887
15	Tool Makers Microscope	2	525,725
16	Magnetic V-Block	28	1,421,050
17	Angle Gauge Block Set	2	1,628,000
18	Bench Comparator	2	459,590
19	Level	5	826,195
20	Surface Plate	30	3,023,096
21	Angle Plate	0	783,521
22	Test Bar	5	216,500
23	Electronic Micrometer	2	1,773,344
24	Square Master	2	914,170
25	Pin Gauge Set	1	177,883
26	Steel Rule	2	6,600
27	Sine Bar	4	645,728
28	Circular Table	1	40,000
29	Autocollimator	1	1,461,949
30	2 Dimensional Data Processing System	1	1,048,554
31	Straight Edge	5	76,043

No.	Nomenclature	Q'TY	Amount
32	Pitch Gauge	8	53,600
33	Vernier Bevel Protractor	2	70,109
34	Gauge Block Accessories	1	417,100
35	Profile Projector	3	1,992,079
36	Telescoping Gauge	1	20,000
37	Digital Counter	1	1,141,500
TOTAL			463
			5,544,182

MACHINING LAB

No.	Nomenclature	Q'TY	Amount
1	Hydraulic Copy Milling Machine	1	11,900,688
2	Engine Lathe	1	1,280,000
3	Upright Drilling Machine	1	190,000
4	Vertical Milling Machine	1	1,625,698
5	Shaper	1	950,000
6	Automatic Lathe	1	77,434,510
7	Index Center	1	1,023,000
8	Black Sawing Machine	1	2,000,000
9	Power Press	1	1,700,000
10	Electric Disk Grinder	1	99,000
11	Bench Type Drilling & Tapping M/C	2	990,000
12	Height Gauge	2	191,400
13	Vernier Calipers	4	110,000
14	Micrometer	4	56,000
15	Cast Iron Surface Plate	1	550,000
16	Lathe	1	4,618,642
17	Milling	1	1,339,044
18	Power Sawing Electric Arc Welder	1	997,000
TOTAL			26
			6,234,982

2-5

Electronics Lab.

No.	Nomenclature	Q'TY	Amount
1	AC & DC Differential	1	127,800
2	Rheostat	26	162,452
3	V-Meter	14	455,279
4	A-Meter	15	421,837
5	DC Potentiometer	1	124,080
6	Termination	9	44,658
7	Attenuator	10	441,138
8	DC Power Supply	23	1,681,102
9	Gauss Meter	2	400,206
10	Leakage Reactance Auto Transformer	1	6,111
11	Coil with 250 Turn	3	315,705
12	X-Y Recorder	2	1,530,000
13	All Purpose VTVM	2	177,840
14	Impedance Bridge	1	142,290
15	Grid Dip Meter	1	65,300
16	Variable Condenser	2	174,785
17	Transistor NF Tester	1	954,860
18	Variable Pulse Generator	3	540,750
19	VHF Sweep Generator	1	629,000
20	Amplifier	4	472,900
21	Pattern Generator	3	997,048
22	RPM Meter	2	229,100
23	Humidity Meter	1	179,000
24	Variable Inductor	1	148,000
25	TV Level Checker	1	188,000
26	20" Video Monitor	1	65,068
27	TV Camera	3	370,567
28	AF Signal Generator	14	1,403,740
29	Slide Rule	1	12,000
30	Drawing Tool Set	1	10,000
31	Capacitor Set	1	7,875
32	V. T. R.	1	368,105

(Unit: Mon)

NO.	Nomenclature	QTY	Amount
33	Oscilloscope	31	7,155,314
34	H. V. Probe Meter	3	595,800
35	Video Tape & Vidicon Tube	14	48,500
36	Stencil cutter	1	469,065
37	Electronic circuit Training	3	346,500
38	Player	1	45,000
39	Multimeter	39	1,243,200
40	Hand Drill	1	22,000
41	Loud Speaker	2	44,000
42	Frequency Converter	1	21,450
43	Cassette Mechanism	2	85,300
44	Dynamic Mike	1	36,300
45	TV With Radio & Tape Recorder	1	224,982
46	Test Loop	2	200,000
47	AM SSG	4	7,280,000
48	FM SSG	2	3,317,278
49	IF Response Tutor	1	1,700,000
50	FM SW MW Training Genescope	8	15,000,000
51	Analog Lab Unit	1	154,000
52	Logic Lab Unit	1	121,000
53	Color Video signal Trainer	1	4,795,000
54	Drill Machine	1	600,000
55	Drill Vise	1	6,800
56	Color TV	1	80,000
57	Frequency Counter	6	522,000
58	All Wave Genescope	2	7,000,000
59	AF Sweep Response Tracer	2	6,360,000
60	Universal Measuring Training System	3	12,665,000
61	Wave Analyzer(Selective Level Meter)	1	464,100
62	Transistor Curve Tracer	1	721,000
63	RF Volt Meter	2	560,000
64	Tape Recorder	2	204,947
55	Micro Computer (TK-80) Training Kit	10	1,688,862
56	Tape Deck	1	434,500
67	Probe Set	2	39,600

No.	Nomenclature	QTY	Amount
68	Soldering Iron Kit (Weller)	3	33,000
69	TR Dip Meter	1	220,000
70	Slide Projector	1	165,000
71	F/AM Radio	5	15,245
72	Color Video Set	1	4,400,000
73	Audio Set	1	1,603,200
74	Inter Compressor	1	165,000
75	RF Signal Generator	2	198,000
76	O. H. P	1	495,000
77	Personal Computer Set (APPLE Model)	1(12)	2,780,000
78	Electronic mv Meter	5	1,056,000
79	AF Generator	14	1,370,600
80	Wow-Flutter meter	1	752,000
81	Universal Counter	1	464,200
82	Distortion Meter	1	484,000
83	V.T.R	1	596,000
84	Acoustic Amp	1	715,000
TOTAL		352	102,618,341

INDUSTRIAL INSTRUMENTS LAB

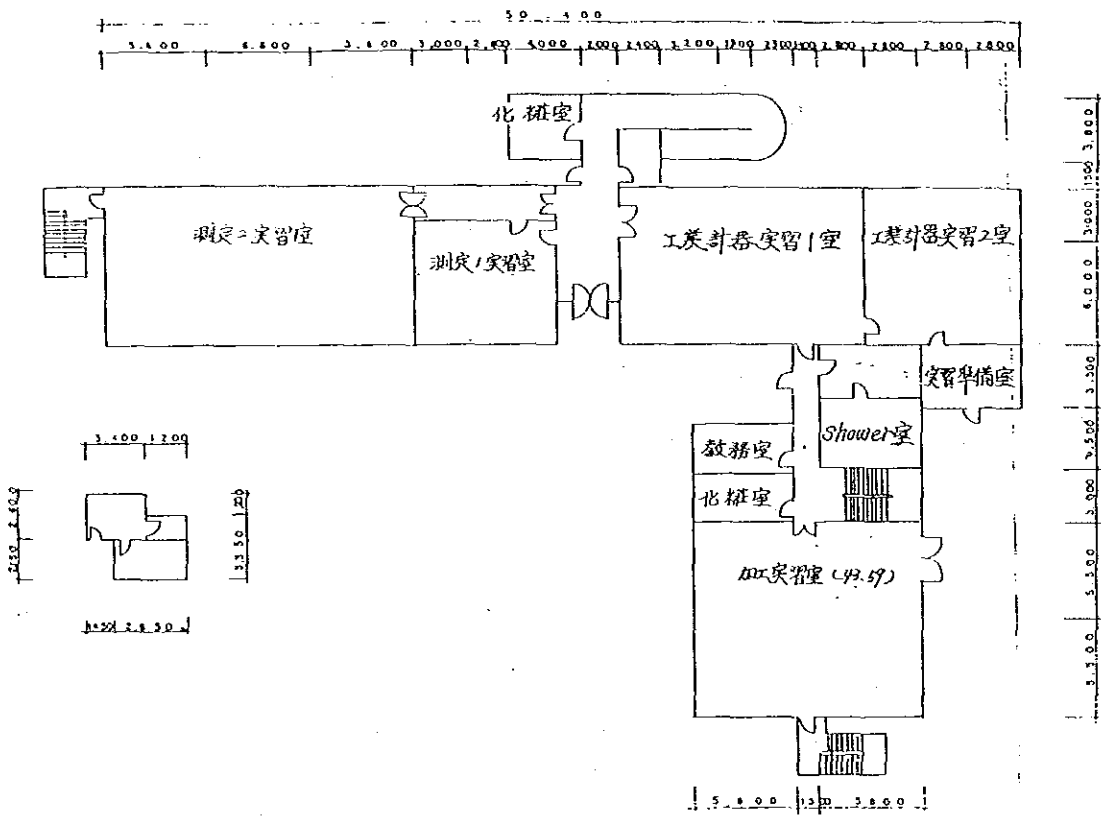
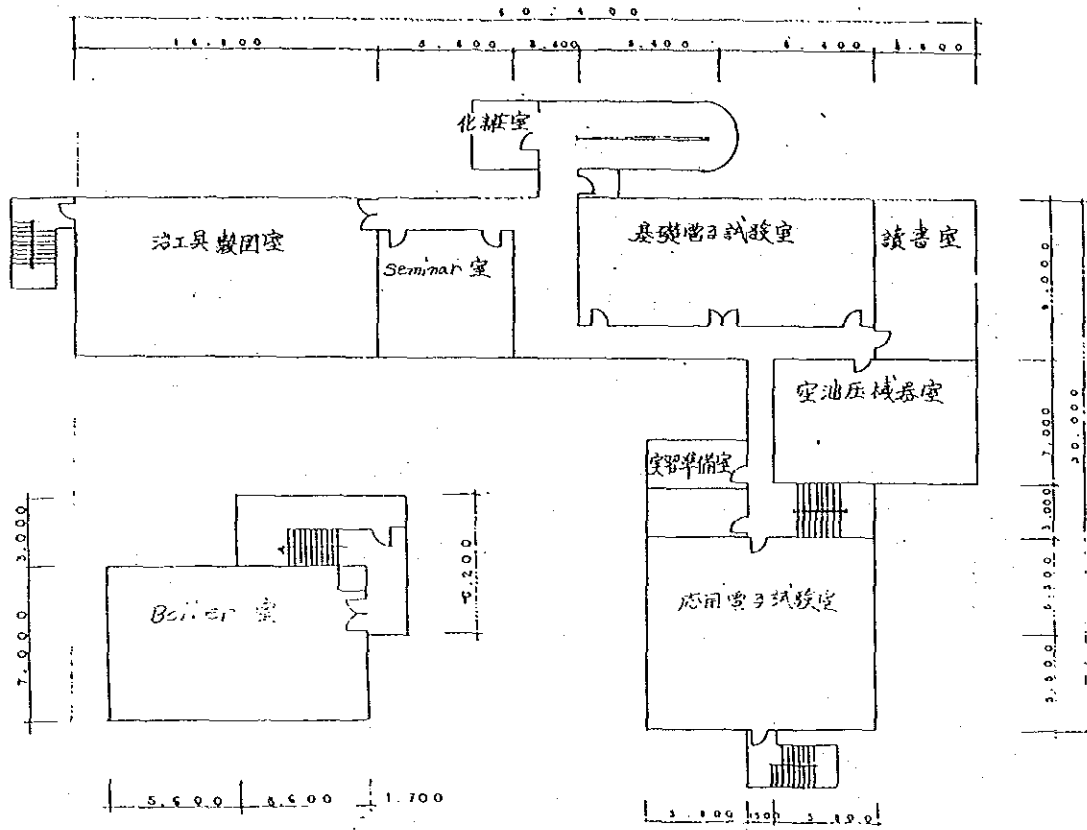
No.	Nomenclature	Q'TY	Amount (Unit:Won)
1	Torch Lamp	1	3,800
2	Electric Drill	1	14,600
3	Hand Grinder	2	69,500
4	Weight	7	103,400
5	Water Tank	2	208,500
6	Controller	11	7,847,876
7	Recorder	4	3,005,000
8	Indicator	2	272,000
9	Electronic d/p Cell	5	3,084,409
10	Dial Calipers	1	52,000
11	Chemical Balance	1	115,000
12	Ventri Meter	1	67,000
13	Pneumatic Summing Unit	1	479,661
14	Pneumatic d/p Cell	8	1,799,627
15	Pneumatic Analog Computer	1	580,563
16	Dynamic Teaching Aid	1	962,920
17	Transducer p/s G	5	190,020
18	Potable Potentio Meter	3	932,520
19	Wheatstone Bridge	3	855,304
20	Stroboscope	1	209,570
21	Farnace Pyrometer Test Set	1	419,054
22	Tester	13	1,351,359
23	Manometer	6	3,476,480
24	A F Signal Generator	1	100,000
25	Thermometer	30	521,384
26	Dead Weight Tester	1	850,000
27	Tacho Generator	1	115,000
28	Wave form Generator	1	360,000
29	Demonstrator	1	950,000
30	Cold Junction	2	22,340
31	Compressor	2	1,405,970
32	Pneumatic Recorder	3	1,078,300

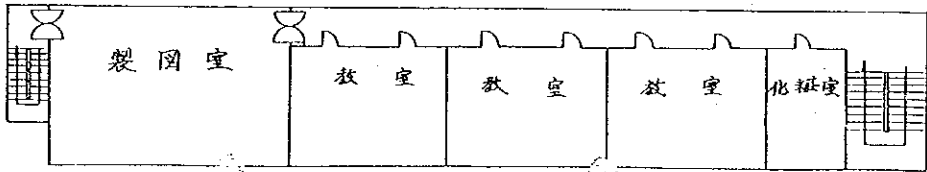
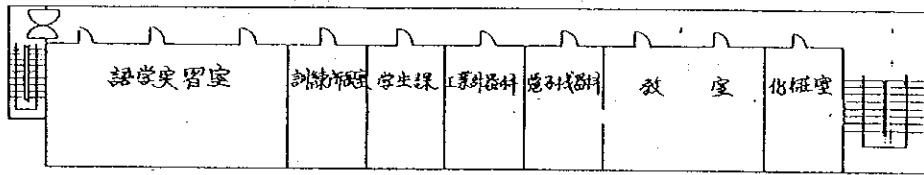
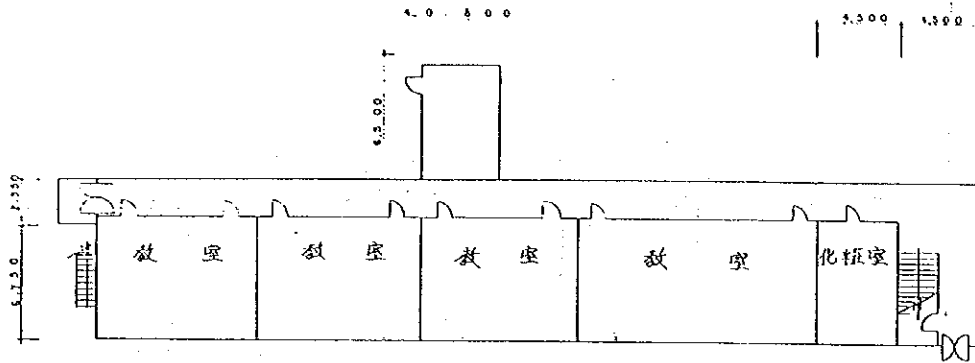
No.	Nomenclature	Q'TY	Amount
33	Process Simulator	2	302,325
34	E. C. I. Current Calibrator	1	46,729
35	PH Meter Checker	1	23,416
36	Mercury Relay	1	11,000
37	Manual control Unit	1	220,000
38	Radiation Pyrometer	1	140,000
39	Drill Machine	1	89,500
40	Hand Tacho Meter	1	100,000
41	Model Process Instrument	1	2,170,000
42	Pneumatic Temp Transmitter	1	44,521
43	Pipe cutting	1	1,150,000
44	Load Cell	1	445,000
45	Drifrice Plate	2	14,500
46	Anemo Meter	1	75,804
47	Vaccum Pump	1	350,754
48	Drill Vise	3	20,400
49	Controller(Pneumatic)	4	210,906
50	Protector Relay	1	50,000
51	Electric Furnace	1	8,221
52	Slidac	2	1,300
53	Converter	5	1,216,612
54	Process Instrument	4	5,560,000
55	Maintenance Equipment	1	490,000
56	Plant Model	1	360,000
57	PH Meter	1	707,500
58	Hyidity Regulator	2	852,000
59	Optical Pyrometer	1	609,400
60	Standard Pressure Gauge	6	348,266
61	Control Relay Calibrator	2	518,400
62	Film Projector	1	350,000
63	Program Set Station	1	2,455,300
64	Decade Resistance Box	2	1,528,384
65	Pneumatic Flow Integrator	1	1,430,000
66	Test Connector	3	871,200
67	Air connection set	3	264,000
68	Service Kit	1	582,500
69	Level Indicating control System	1	520,000

No.	Nomenclature	Q'TY	Amount
70	Tank Level Gauge	1	540,000
71	Level Switch	3	530,000
72	Level Controller	3	230,000
73	Program Simulator	1	2,580,000
74	Valve Positioner	1	133,000
75	Control Valve	4	2,774,097
76	Flow Meter (Screwed Type)	4	5,730,625
77	Brooks Strainer	4	3,036,727
78	Air Regulator	8	599,600
79	Power Supply	2	385,000
80	Computer	1	2,680,000
81	Indicating Meter	11	774,000
82	Megger	1	35,000
83	Micrometer	3	39,600
84	Oscilloscope	2	1,485,000
85	Programmable Computing Unit	1	1,078,000
86	Oscillator	1	203,500
87	Manual Station	1	500,000
88	Distributor	2	757,250
89	Programmer	1	797,792
90	Pneumatic Calibrator	1	2,018,647
TOTAL		243	87,251,943

既存実習室施設図面

<資料-4>





<資料-5>

短期課程

技術訓練

1986

ITC

韓国機械研究所
附設 企業技術支援センター
技術訓練所

教 育 日 程

課 程 名	教 育 課 程		1 9 8 6 年											
	期 間	当人員	1	2	3	4	5	6	7	8	9	10	11	12
治工具設計技師	3 週	30					26~14							
工程設計技師	3 週	30										13/1		
精密測定士	2 週	35					19~31					27~8		
空油圧制御技術	2 週	25				14~26		16~23			1~13			
	初 級	1 週	35											
	中 級	1 週	35							1				
	高 級	1 週	35										1	
委 託 教 育	業 体 と 協 議 決 定													

1. 治工具設計技師課程

1 治工具設計担当技師に、産体制の必要な生産技術と製品の精密度維持の為に治工具設計能力を習得させる。

2 受講資格

工大または工業専門大卒業者として治工具及び工程設計担当者

3 教 育 期 間： 3 週（113 時間）

4 人 員： 30 名

5 受 講 料： 120,000WON

6 教 育 内 容

教 科 目	時 間	教 科 目	時 間
治 工 具 設 計	30	工 程 設 計	26
切 削 工 具 設 計	10	治 工 具 設 計 実 習	14
Gage 設 計	6	現 場 見 学	7
公 差 論	16	治 工 具 材 料	4

7 教 育 場 所： 企 業 技 術 支 援 セ ン タ

2. 工程設計技師課程

1 教育目標

工程設計担当技師に製造工程の選定及び作製工程図作成の為に工程設計能力を習得させ体系的な生産体制を確立す。

2 受講資格

工大または工業専門大卒業者として工程及び治工具設計担当者

3 教育期間： 3週(117時間)

4 人員： 30名

5 受講料： 120,000WON

6 教育内容

教科目	時間	教科目	時間
工程設計	30	Gage設計	6
公差論	16	工程設計実習	14
公差管理	10	切削工具設計	10
治工具設計	22	熱処理表面処理	7

7 教育場所： 企業技術支援センター

3. 精密測定士課程

1 教育目標

機械製品の品質管理及び検査要員の為に、各種精密測定器を活用して正確する品質水準の判断及び精密度の維持管理に関する新しい技術の普及の為に、製品の品質向上を図謀す。

2 受講資格

工高卒業後、2年経歴者または工専卒業者

3 期間： 2週(78時間)

4 人員： 30名

5 受講料： 70,000WON

6 教育内容

教育内容	時間	教育内容	時間
登録及び課程紹介	1	ねじ測定	2
測定基礎	2	測定器精度管理	1
寸法測定	8	Gage測定法	6
角度測定	4	Gear測定	2
3次元測定	2	品質管理概論	2
あらさ測定	2	測定実習	39
輪郭測定	2	総合試験	1
形状測定	4		

4. 空油圧制御技術課程

1 教育目標

System設計技術者に、製品の生産性向上と品質水準の安定化の為に機械装置及び施設の能率を増加させる自動化及び省力化技術に関する空圧、油圧、電気的の制御方法を習得させる。

2 受講資格： 工専卒業以上の該当分野技術者

3 期間： 2週（78時間）

4 人員： 25名

5 受講料： 90,000WON

6 教育内容：

教育内容	時間	教育内容	時間
登録 課程 紹介	1	電気-空気回路設計及び実習	14
圧縮空気の製造及び供給	4	油圧工学基礎	2
空圧作動要素	2	油圧制御・作動要素	4
空圧制御要素	4	油圧基本回路設計及び実習	10
空圧基本回路設計及び実習	8	電気油圧回路設計及び実習	12
空圧応用回路設計及び実習	16	総合試験	1

5. 工業計器技術課程

●教育目標

現場で従事する工業計器分野従事者の能力と資質を向上させ、新しい技術と情報を習得させ実務処理能を向上させる。

A. 初級課程

- 1 受講資格： 工業計器分野従事者として実務経歴2年未満の人
- 2 教育期間： 1週
- 3 人員： 35名
- 4 受講料： 60,000WON
- 5 教育内容

教科目	時間	教科目	時間
自動御制基礎	2	庄力 Level 測定	5
温度測定	6	計装工事基礎	5
流量測定	6	実習	6

B 中級課程

- 1 受講資格： 工業計器分野従事者として2年以上4年未満の経歴者
- 2 教育期間： 1週
- 3 人員： 35名
- 4 受講料： 60,000WON
- 5 教育内容

教科目	時間	教科目	時間
自動制御	2	計工事の計画 施工	4
温度測定及び較正	6	成分分析	2
流量測定及び較正	6	実習	6
庄力 Level 較正	4	計	30

C 高級課程

- 1 受講資格： 工業計器分野，実務経歴5年以上の人
- 2 教育期間： 1週
- 3 人員： 35名
- 4 受講料： 60,000WON
- 5 教育内容

工業計器及び計測の特定分野に関する理論並びに実習に関し外国専門家を招聘して，実施する予定であり，内容及び日定は追後通報する。

6. 委託教育

業体の要求に依って本訓練所教育担当者と協議決定す。

技師 2 級 理論 問題 例

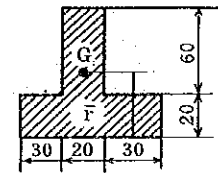
科目： 材 料 力 学

実施年度： 1981年

試験時間： 25 問題 50 分

1) 下の図の様な T 形図形の図心(\bar{Y})の位置は ?

- a) $\bar{Y} = 27.14$ b) $\bar{Y} = 30.01$
c) $\bar{Y} = 26.33$ d) $\bar{Y} = 28.21$



2) 断面の形状が $6\text{ cm} \times 7\text{ cm}$ であり、長さが 3 m ある軟鋼の矩形

断面の柱で、座掘応力は $\%$ ですか。但し一端固定であり、
軟鋼の円周の弾性係数 $E = 2.1 \times 10^6$ 髯である。

- a) 173.1% b) 283.4% c) 383.4% d) 173.4%

3) 毎分 1750 rpm にて回転して 60 馬力を伝達する動力軸の直径 d はどのくらいですか。但し、動力軸の引張強度は 540 髯であり、動力軸のねじり強度は引張強度の 70% であり、 $G = 0.8 \times 10^6$ 髯である。

- a) $d = 2.2\text{ cm}$ b) $d = 5.6\text{ cm}$ c) $d = 7.3\text{ cm}$ d) $d = 8.5\text{ cm}$

4) 2 軸応力が作用する Mohr 円で σ_x が引張応力であり、 σ_y が圧縮応力であり、相互に垂直に作用する時 $\sigma_x = \sigma_y$ なら Mohr 円の直径は ?

- a) 0 b) σ_x c) $2\sigma_x$ d) $\frac{\sigma_x}{2}$

5) 直径 4 cm の回転軸で長さ 1.6 m ごと $1/45\text{ rad}$ のねじりが起こった。この時軸の馬力は 20.5 馬力である。この軸の従弾性係数 $G = 8 \times 10^5$ 髯の時、回転軸の回転数はどのくらいですか。

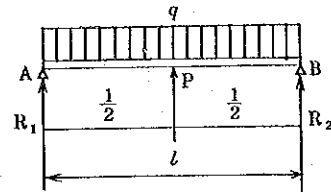
- a) 526 rpm b) 325 rpm e) 277 rpm d) 51.9 rpm

6) 長さ 4 m の棒が荷重を受けて 3 mm が伸びた。この棒の弾性係数は 2×10^6 髯である。この棒の受ける応力はどのくらいですか。

- a) 150% b) 280% e) 1350% d) 1500%

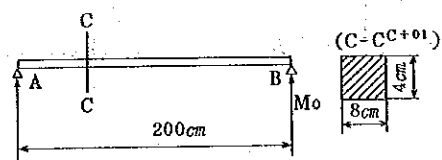
- 7) 図の様に均一等分布荷重 q を受ける単純Beam の中央に荷重 P を作用させて、このBeam の中央点の Deflection が Zero になるようにする。この時中央点に作用させる荷重 P はどのくらいですか。

- a) $p = \frac{5q\ell}{4}$ b) $p = \frac{q\ell}{2}$ c) $p = \frac{q\ell}{4}$ d) $\frac{5q\ell}{8}$



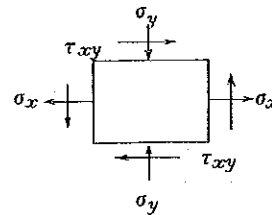
- 8) 下図の様な Simple Beam の B 点に $M_0 = 50 \text{ kg-cm}$ の Bending Moment が作用する時、発生する最大 Deflection は、どのくらいですか。但し、材料の弾性係数は 2.1×10^8 ㊯である。

- a) 0.6 mm b) 0.2 mm c) 0.0143 mm
d) 0.043 mm



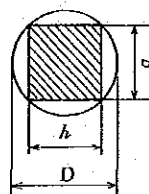
- 9) 下の図の様な材料の中で、引張応力 $\sigma_x = 700$ ㊯と圧縮応力 $\sigma_y = 200$ ㊯，断応力の $\tau_{xy} = 500$ ㊯ が作用する時、発生する最大主応力 σ_1 と最小主応力 σ_2 はどのくらいですか。

- a) $\sigma_1 = 922$ ㊯ $\sigma_2 = -422$ ㊯
b) $\sigma_1 = 710$ ㊯ $\sigma_2 = 261$ ㊯
c) $\sigma_1 = 756$ ㊯ $\sigma_2 = 426$ ㊯
d) $\sigma_1 = 700$ ㊯ $\sigma_2 = -200$ ㊯



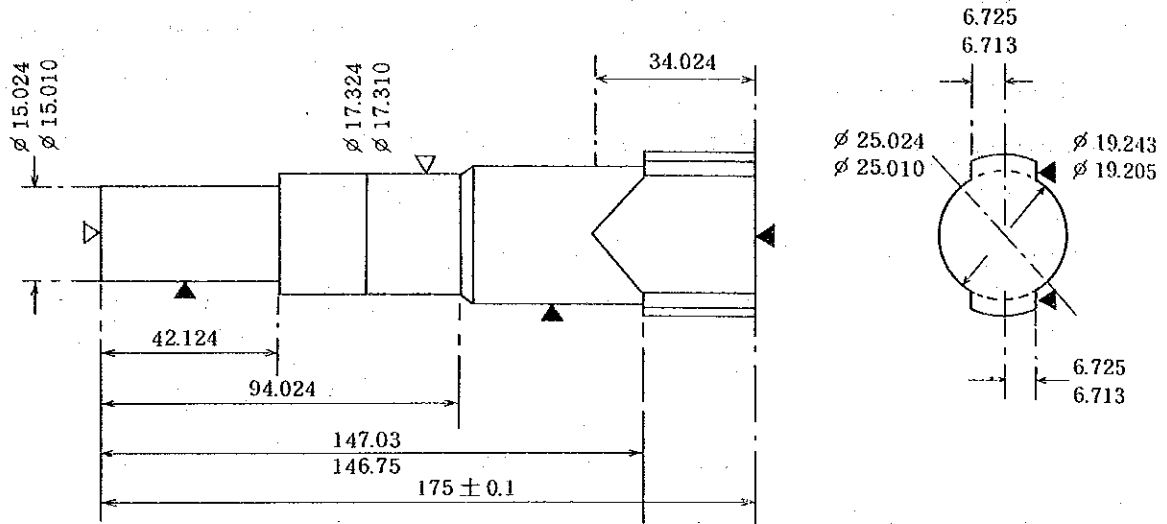
- 10) 図の様な直径が 5.0 cm になる円形断面の原木を切って、最大強度を待たせるような断面 Beam を作る場合の直四角形の断面の幅 \times 高さはどのくらいですか。

- a) $2.46 \times 3.58 \text{ cm}$
b) $2.57 \times 3.79 \text{ cm}$
c) $3.18 \times 4.37 \text{ cm}$
d) $2.89 \times 4.08 \text{ cm}$



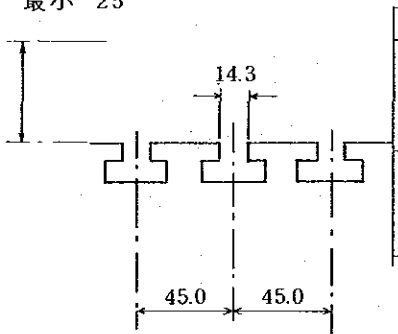
<資料-7>

治具設計技師一級問題(実技)

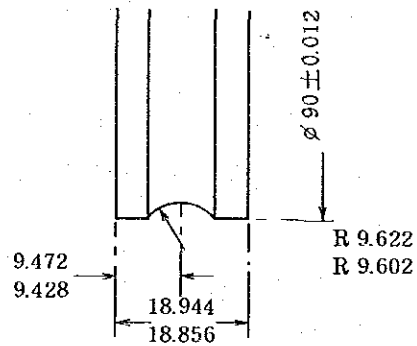


▼ : LOCATOR POINT
 ▽ : CLAMP POINT

最大 175
 最小 25



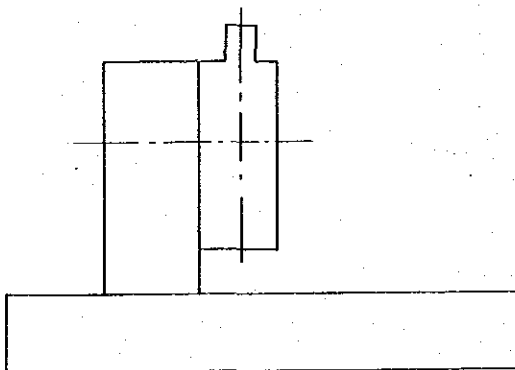
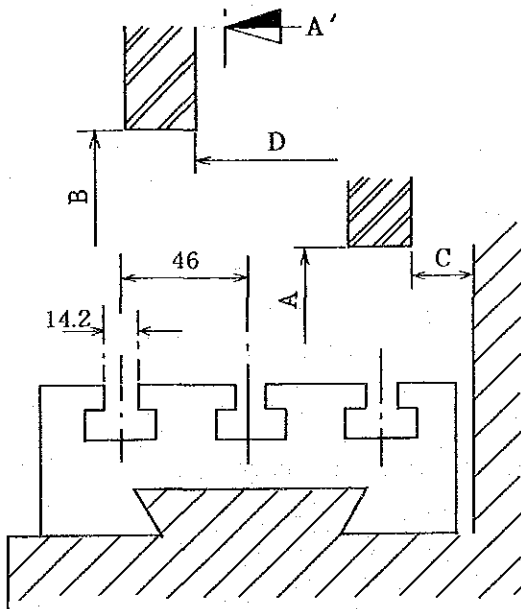
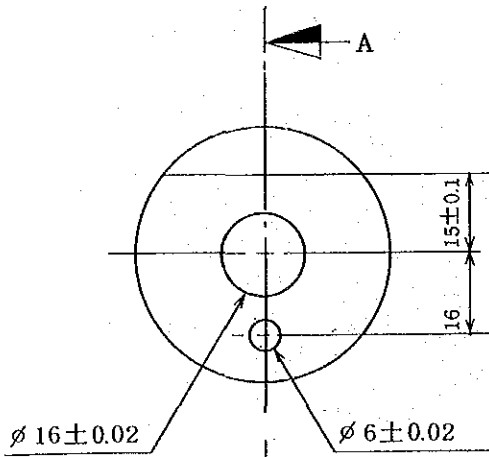
• CUTTING TOOL



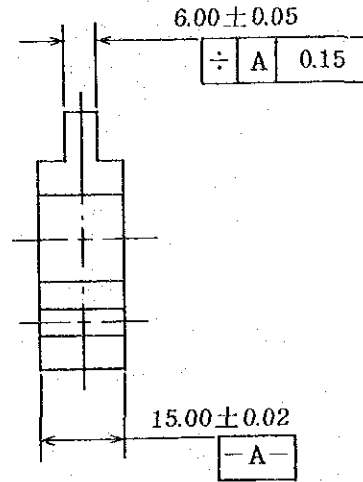
要 求 事 項

- 1) 数 量 : 10,000 個
- 2) 使用機械 : 生産形 MILLING M/C
- 3) 加工部位 : $\phi 19.243$
 $\phi 19.205$
- 4) 制限時間 : 8 時間

<資料-8>



<治具形態図>



- 1) 使用機械：生産形MILLING M/C
- 2) 使用工具： $\phi 56 \times 14 \text{ mm}$ - 2個
- 3) 機械LAY-OUT

上・下：A(80) B(135)

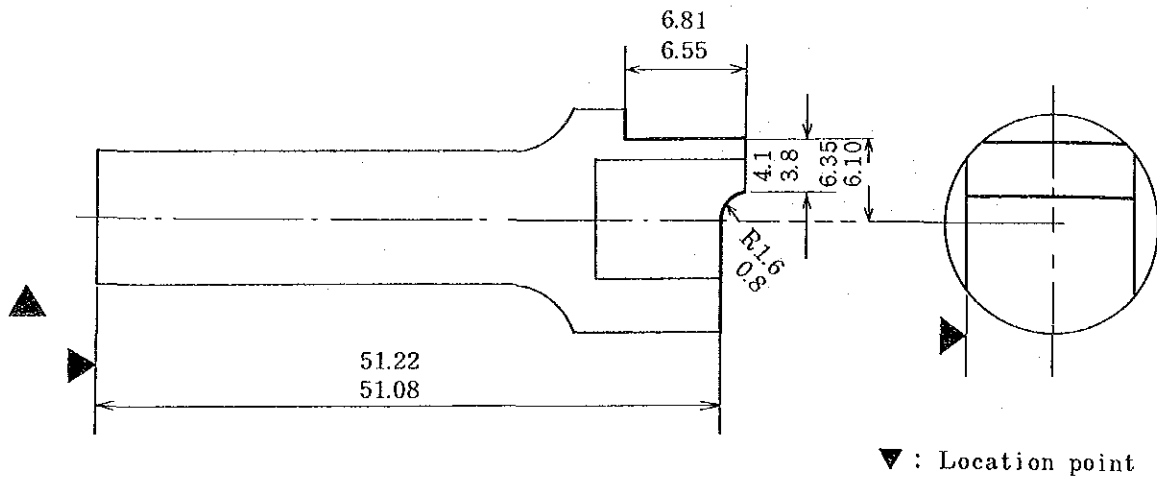
前・後：C(40) D(75)

※要求事項

加工部位 6.00 ± 0.05 はDATUMN "A"
 について対称図 0.15 以内として下さい。

○制限時間： 8時間

○加工部位： 6.00 ± 0.05



要 求 事 項

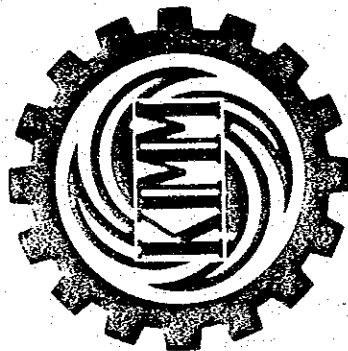
- 1) 数 量 : 10,000個
- 2) 使用機械 : 生産形MILLING M/C
- 3) 加工部位 : —
- 4) 制限時間 : 8時間
- 5) 使用工具 : (外径) (i) (内径)
 $\varnothing 75 \times 12 \times 25.4$
 $\varnothing 80 \times 10 \times 25.4$



Since the beginning of the Fifth Republic, Korea has established the possibility of creating an advanced nation using the impetus of its economic successes. To accomplish this successfully the nation has concentrated on technical development in the fields of machinery, metals and shipbuilding. The acquisition and development of advanced technology is doubly important for Korea since it is poor in natural resources and must compensate for this by rapid industrialization if it is to have a significant role in the world economy.

To meet the requirements of the times, KIMM is making every effort to recruit technical experts and well-trained researchers, and to acquire the latest high-precision testing and research equipment. Equipped with these resources, KIMM will be able to play a pivotal role in the development of methods for test and evaluation, new machinery, new methods of processing metals and new ship design and construction technology. In addition, KIMM contribute to this goal through its research programs, its programs to provide technical advice to domestic industries, and in technicians training programs.

FOR INFO



KOREA INSTITUTE OF MACHINERY & METALS

To promote international technical cooperation, KIMM has signed agreements with highly regarded research institutes in the United States, Japan, West Germany and other advanced countries. Through these technical cooperation agreements, we are able to solve many technical problems confronting the nation's manufacturers and to provide them with technology that enables them to enhance the quality of their products. KIMM stresses assistance to small and medium-sized enterprises, which we firmly believe to be the backbone of an advanced industrial economy.

I wish to extend my sincere and hearty thanks to all those who have supported and encouraged us thus far, and to solicit their continued encouragement and support.

Thank you.

Hae Lee, Ph. D.
President

Purposes

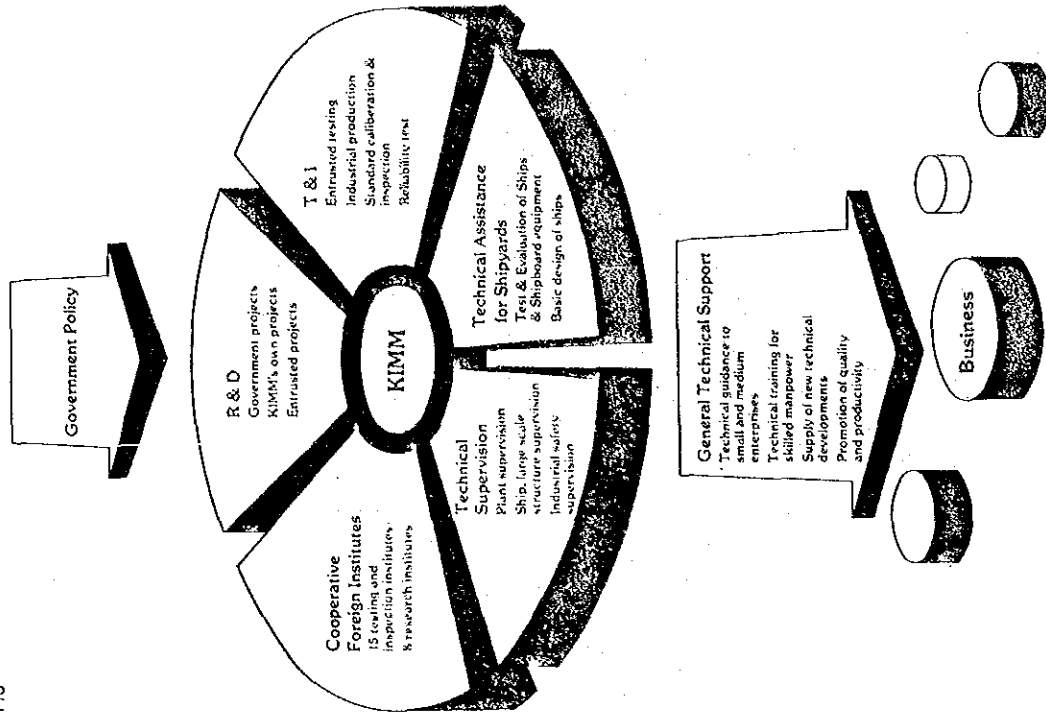
Machinery, Metal, Shipbuilding and Other Related Fields

- Research and development for scientific technological survey.
- Testing and inspection; standard calibration and technical supervision.
- Technical guidance and training.
- Acquisition and adaptation of advanced technology and replenishment of its effects.
- Scientific and technical contributions to machine industry, metal industry, shipbuilding industry, defence industry and related industries.

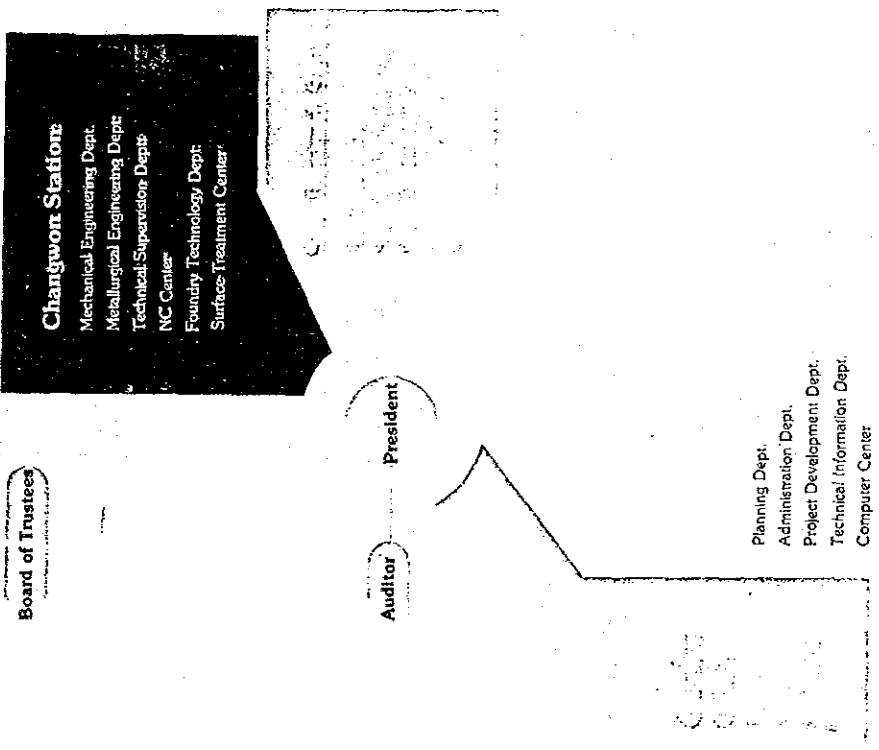
History

- APR. 13, 1966 Establishment of Fine Instruments Center (FIC)
- NOV. 4, 1976 Establishment of Korea Research Institute of Ships (KRIS)
- DEC. 30, 1976 Establishment of Korea Institute of Machinery and Metals (KIMM)
- APR. 1, 1979 KIMM and FIC consolidated under the name of KIMM
- JAN. 5, 1981 Korea Institute of Machinery and Metals renamed after the consolidation with KRIS

Functions



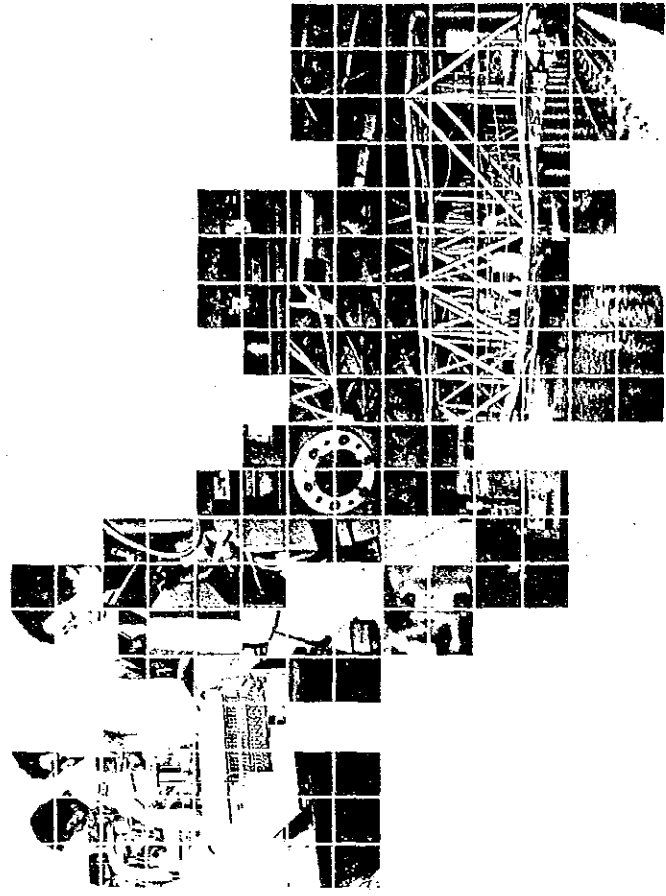
Organization



Changwon Stations
 Mechanical Engineering Dept.
 Metallurgical Engineering Dept.
 Technical Supervision Depts.
 NC Center
 Foundry Technology Dept.
 Surface Treatment Center

Major Activities

- | | | |
|-----------------------------------|-------------------------------------|--|
| Structural Mechanics | Ship Hydrodynamics | -Standard Maintenance and Calibration |
| Thermomechanics & Fluid Mechanics | Ship Structure | -Technical Transfer |
| Engine & Vehicle | Shipbuilding Technology | -Machinery Industry Promotion Activities |
| Aeronautical Machinery | Ship Design | -Technical Training |
| Production Automation | Model Testing | Technical Information Service |
| Metal Forming | Shipboard Machineries and Materials | Computer Application |
| Surface Treatment | Maritime Economics | |
| Chemical Analysis | Technical Support | |
| Material Development | -Testing & Inspection Activities | |
| Foundry Technology | | |
| Technical Supervision | | |



Structural Mechanics

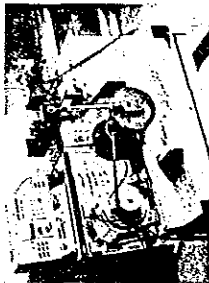
Prevention and prediction of fatigue, fracture, and wear play an important role in structural safety and reliability. The Structural Mechanics Group concentrates on structural reliability studies of domestic machinery, optimal design, design against metal fatigue using theoretical and experimental stress analysis.

A multiaxial fatigue testing machine and a structural fatigue testing system with 50 ton servohydraulic actuator were developed here. These systems evaluate the endurance and reliability of structures such as axle housings, oil jacks and leaf springs.

Several experienced experts on stress analysis along with the relevant apparatus such as photoelastic equipments, data acquisition system, and computer make the Structural Mechanics Group very effective.

Main Activities

- Study of mechanical failures: fatigue, fracture and wear effects.
- Theoretical and experimental stress analysis.
- Optimal design of machine parts and structures.
- Development of fatigue testing machines.
- Studies on endurance, enhancement and reliability of domestic machinery.



▲ Multiaxial fatigue testing machine



▲ Structural fatigue testing system



▲ Experimental stress analysis by photoelasticity

Thermomechanics & Fluid Mechanics

Research efforts in this field are directed toward performance enhancement and domestic development of related machinery & equipment through laboratory exploratory studies and theoretical analysis. Technical support for industries in this

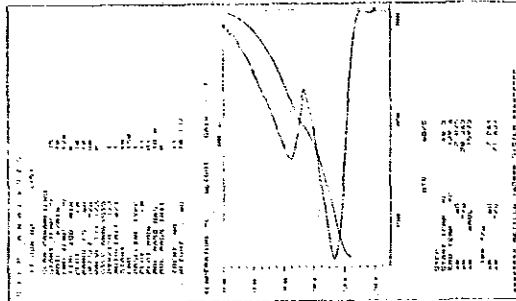
area is another major arena of work. Major research results include optimum design for heat exchangers and chemical heat pipe system. The chemical heat pipe system is being developed upto pilot plant scale for transporting thermomechanical energy.

Main Activities

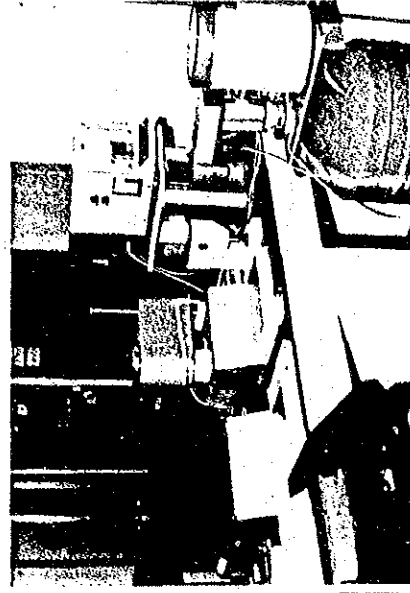
- Thermal characteristic analysis of thermomechanics.
- Development studies of conversion, storage and transport systems for thermal energy.
- Thermodynamic analysis for the performance enhancement of refrigerators, heat pumps and air conditioning systems.
- Heat transfer analysis and the development of related computer programs.
- Study of combustion phenomena for industrial furnaces, boilers and stokers.
- Theoretical and experimental studies of fluid flow.
- Design and performance analysis of turbomachinery.

Main Equipment

- Differential scanning calorimeter
- Thermomechanical analyzer
- Thermogravimetric analyzer
- Laser doppler anemometer
- Gas chromatograph
- Mach-Zehnder interferometer
- Thermal conductivity meter
- Thermal conductivity apparatus
- Adiabatic calorimeter
- Density gradient column
- Surface tensiometer
- Gravimeter
- Viscosimeter



▲ Thermal analysis system



Engine & Vehicle



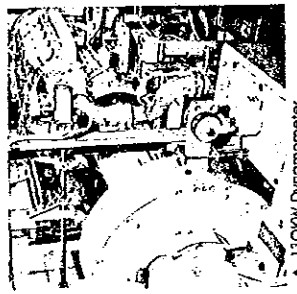
Research has been conducted to improve the performance of domestic engines for fuel economy and low emission rates. Also, domestic engines & automobile parts are being tested for quality certification and inspected.

Main Activities

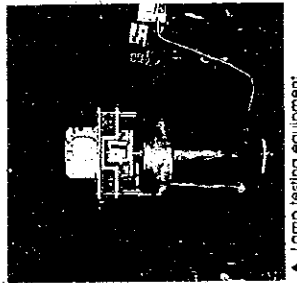
- Development of design technology for engines.
- Research on combustion phenomena & system.
- Research on fuel economy & emission control.
- Experimental studies on alternative fuel sources.
- Research on engine vibration & noise.
- Performance testing and inspection of engines and auto parts.

Main Equipment

- E.C. Dynamometer (130kw)
- D.C. Dynamometer (22kw)
- Low-high pressure indication system
- Air/fuel ratio analyzer
- Blow-by measuring equip.
- Diesel smoke tester
- Safety belt testing equip.
- Car heater testing equip.
- Lamp testing equip.



▲ 130KW Dynamometer

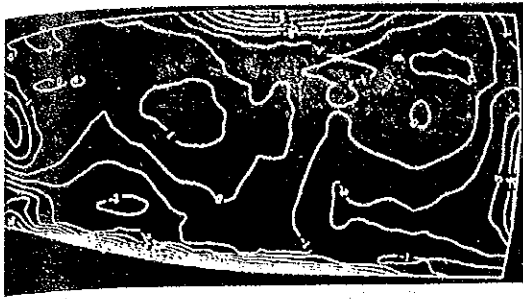


▲ Lamp testing equipment



▲ DC type 22KW dynamometer

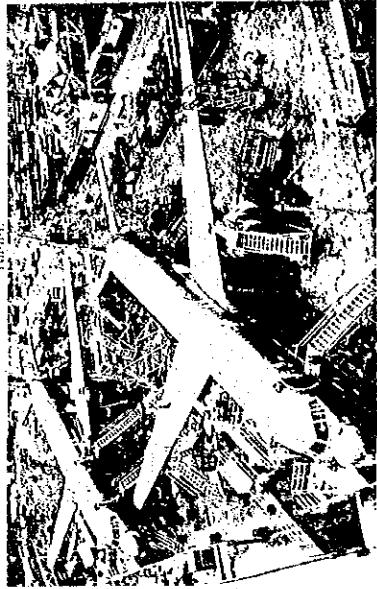
Aeronautical Machinery



The Aeronautical Machinery Group concentrates on the establishment of a national quality assurance system for aircraft and related parts. Through technical cooperation with foreign aeronautical authorities such as FAA, advanced foreign aeronautical technology will be introduced and transferred to the domestic aeronautical industry. Through technical training of KIMM researchers by the FAA, manufacturing inspection and airworthiness inspection will be performed on aircraft and aircraft parts.

Main Activities

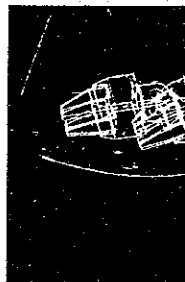
- Establishment of quality assurance systems for aircraft and related parts.
- Promotion of technical cooperation with the foreign aeronautical authorities, such as FAA.
- Introduction of advanced foreign aeronautical technology.
- Technology transfer to the aeronautical industry.
- Manufacturing inspection and airworthiness inspection of aircraft and related parts.
- Supervision and support of aero-related researches in other Groups of KIMM.



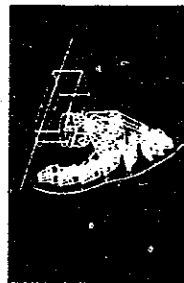
Robotics and Fluid Power

Coping with the trends in production automation and improving productivity in domestic industries, our work has been concentrated on the development of industrial robot system and its applications. We have developed low-cost robot systems for small-scale industries and worked on the development of intelligent robots which can assist human workers in various environments as well as in manufacturing. KIMM has recently begun to establish a laboratory for fluid power research. It provides the overall testing and inspection services for the fluid power related industry. We also intend to improve the technology for hydraulic system design and its control.

- Development of industrial robot and its application engineering
- Study on the intelligent robot with vision and tactile sensors
- Manipulators for nuclear and underwater applications
- Establishment of laboratory for design, testing and prototype development in all areas of fluid power engineering



▲ Robot Hand



▲ Robot Manipulator

NC Machines and Software Technology

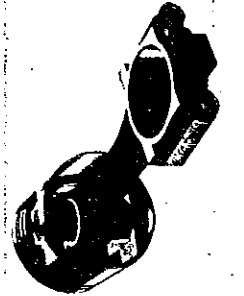
With the rapid advancement of production automation in domestic industry, there is an increasing demand for NC machines and application softwares. KIMM has been closely involved in the development of NC machines with domestic machine tool builders for many years, and in particular, NC Control and related softwares are our main concerns. We provide various technical supports for the implementation of NC machines.

- Development of NC machine tools
- Development of NC control technology
- Automatic NC programming and post-processors
- Application engineering for NC machines
- Flexible Manufacturing System

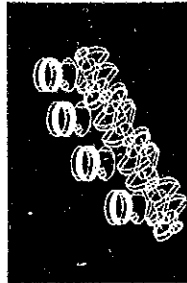
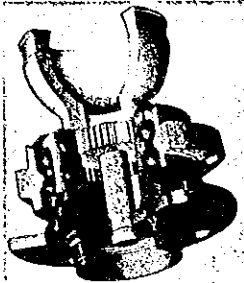
Computer Aided Design and Manufacturing (CAD/CAM)

CAD/CAM has been a major impact on the productivity improvement of design and manufacturing processes. KIMM has established major CAD/CAM capabilities and serves as a centre for user network, where key staff from user firms can study the techniques, try out the equipment and obtain expert and objective advice. Research work is directed towards the integration of various softwares and expansion of CAD/CAM capabilities.

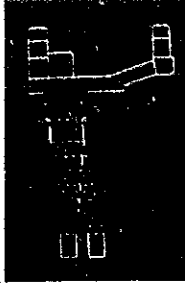
- Data base of design and manufacturing technologies
- CAD/CAM user service
- Application of CAD/CAM
- Microcomputer application in manufacturing



▲ Solid Modeling by CAD/CAM



▲ Kinematic Simulation of Engine



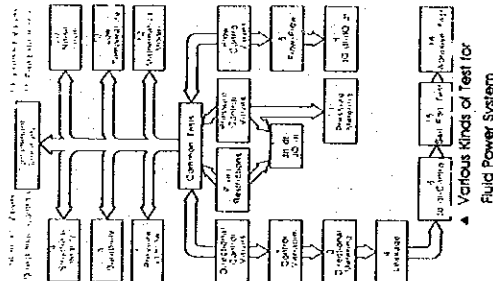
▲ Finite Element Modeling

Manufacturing Technology

Research work on cutting, grinding, metal forming, and special manufacturing processes are carried out. Advancement in manufacturing automation and the development of new materials require new technology different from conventional one.

Micro-machining is investigated to obtain high precision up to 1 μ m, and the data base for machining will be established. Continuous efforts are done to develop clamping technology for precision and durability.

- Computer simulation for precision grinding
- Design and manufacturing of precision dies
- Metal forming techniques of super precision parts



▲ Various Kinds of Test for Fluid Power System

Surface Treatment

The Surface Treatment Center contributes to the domestic surface treatment industries through the technical assistance and consulting services based on research and work of recent technology as well as testing of domestic coating products.

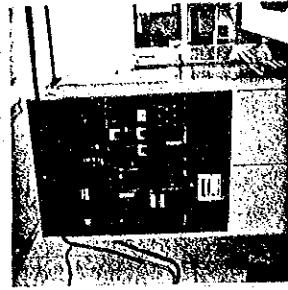
The major research field covers anodizing, electroplating, chemical conversion coating, organic coating, CVD, PVD and corrosion & its protection.

Main Activities

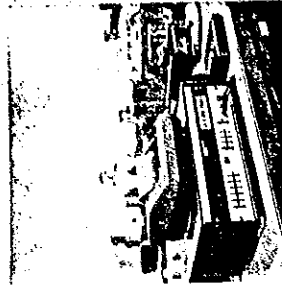
- Development of surface coating treatment
- Hard anodizing treatment
- Hard chromium plating
- Composite, alloy plating
- Organic coating
- Hot dipping
- Ion plating
- CVD, PVD
- Development of electrolytic (Zero-pollution, electroless, alloy plating)
- Research of corrosion and anticorrosion technology
- Inspection & evaluation of surface treated products.

Main Equipment

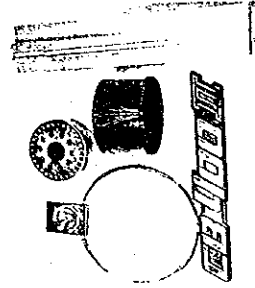
- Electroplating pilot plant
- Anodizing pilot plant
- CVD coating system
- Sputtering coating system
- Organic coating pilot plant
- Electroless plating pilot plant
- Thickness tester (β-scope, Couloscope, Permapscope, etc.)
- Salt spray tester
- Climatic test cabinet
- Xenon tester
- Weather-O-meter
- Taber abraser



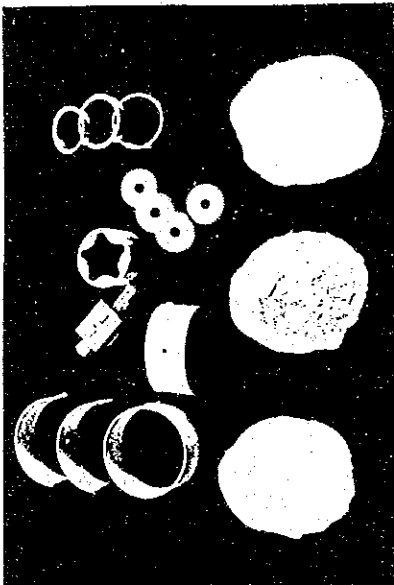
▲ Weather-O-Meter



▲ Beta-Scope



▲ Surface treated products

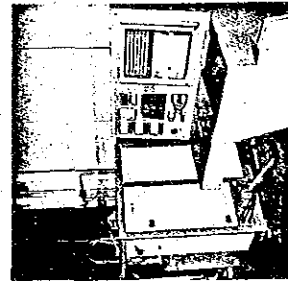


▲ Metal Powder & P/M parts

- ### Main Activities
- P/M and P/M forging characteristics
 - Cold forging, stamping and lubrication
 - Development of manufacturing process for automotive parts
 - Die manufacturing & heat treatment
 - Rapid solidification technology
 - Casting and special welding technology

Main Equipment

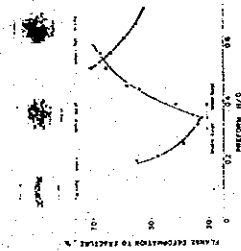
- Hot isostatic press
- Vacuum induction melting furnace
- Compacting press
- Sintering furnace
- Rapid solidification equipment
- Temperature programmable furnace



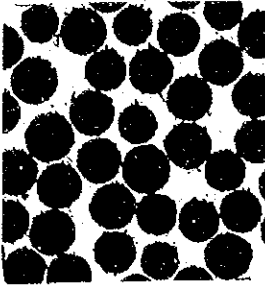
▲ Hot isostatic Press

Metal forming R&D at KIMM is concerned with many diverse fields. It includes conventional powder metallurgy, high density powder metallurgy, cold forming, sheet metal forming, and a new exciting field, rapid solidification technology.

The activities of this laboratory range from fundamental studies of metal flow and powder consolidation to conducting joint projects with small and medium industries and long-term national projects. A strong technical base and extensive specialized facilities are utilized to apply state-of-the-art and new technologies to the metal forming industries.



▲ Forming Limit Curve



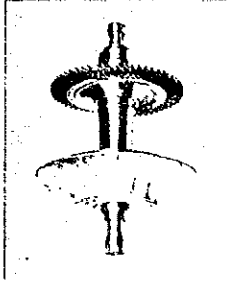
▲ Al_2O_3/Al Composite

Major Research Fields

- Development and quality improvement of heat-and corrosion-resistant steels
- Improvement of the elevated and low temperature properties of alloys
- Development of the materials for the aircraft parts
- Development of advanced composite materials (FRP and FRM)
- Failure analysis and evaluation of material degradation
- Testing and quality evaluation

Major Equipments

- Universal Testing M/C (120-1,000KN ~ 750 10000°C)
- Scanning Electron Microscope with EDS & WDS (JEOL 35CF)
- Impact Tester with Storage Oscilloscope (300J and 750J)
- Hydraulic Fatigue Testing M/C (630KN, up to 10000)
- Hardness Testers (HV, HB, HR, HK, Shore and Micro-hardness)
- Optical Microscope (Leitz M166) and Stereoscope (Zeiss)
- Bonding Autoclave for Composite Materials Fabrication
- Various Heat Treatment Furnaces



▲ Superalloys

The major function of the Material Development Laboratory is to carry out R&D as well as T&I for the purpose of development, quality improvement and evaluation of the metallic materials, in order to contribute substantially to the domestic machinery and metal industries. The researchers of this laboratory concentrate their effort on increasing the competitive power of the domestic products in the international market.

Chemical Development



▲ X-Ray fluorescence spectrometer

Instrumental Chemical Analysis Apparatus

- Vacuum emission spectrometer (ICAP, Arc-spark)
- X-Ray fluorescence spectrometer
- Atomic absorption spectrophotometer
- Evolograph (H, N, O)
- Carbon, sulphur analyser
- Micro and chemical balance
- Viscometer (Brookfield)
- UV/VIS spectrophotometer
- C.O.D. automatic analyser
- B.O.D. monitor and D.O. meter

Research and Development

- Wet-chemical analysis
- Instrument chemical analysis
- Raw materials purifying system and final chemicals
- Manufacturing of chemical products
- Evaluation of chemical materials.

Chemical Analysis Activities

- Chemical analysis of metal and non-metal
- Analysis of pollution water & air test
- Purity and impurity determination of chemicals
- Thermal analysis, diffraction and infrared test



▲ Vacuum emission spectrometer (ICAP, Arc-Spark)



Scanning Electron Microscope with EDS/WDS

The principal function of this laboratory is to support other laboratories and the analytical needs of industry, provided with the official certificate of chemical composition as required. Establish a project to improve quality and develop new material concerning with chemistry.

Chemical Analysis

Foundry Technology

The foundry technology center was established to contribute to the improvement of foundry technology and the development of foundry industries.

The activities of the center involve research, development, and technical services.

Foundry technology research and development work involves:

- Melting techniques
- Molding techniques
- Gating & risering design
- Parting & cleaning techniques

Foundry technical services regard to

- Material testings
- Information services
- Technical consultations
- Technical trainings

Main Fields of Research & Development

Cast Iron

Technology of manufacturing process:

- Inoculation
- Spheroidizing treatment
- Alloy cast iron

Technical development of foundry equipments:

- Molding equipments
- Sand preparation installation
- Induction furnace
- Cupola

Main & Subsidiary molding materials:

- Green sand mold
- Furan mold
- Shell mold
- Cold box mold

Precision Castings

Technology of manufacturing process:

- Investment mold
- Ceramic mold
- Plaster mold

Pattern making technology:

- Wood pattern
- Plaster pattern
- Metal pattern

Main & subsidiary materials

- Pattern material
- Binder for investment casting process
- Parting & cleaning materials

Steel & Non-ferrous Castings

Technology of manufacturing process:

- Melting & alloying
- Drossing & Degasing treatment

Technical development of foundry equipments:

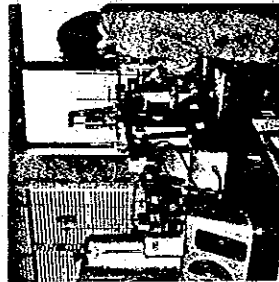
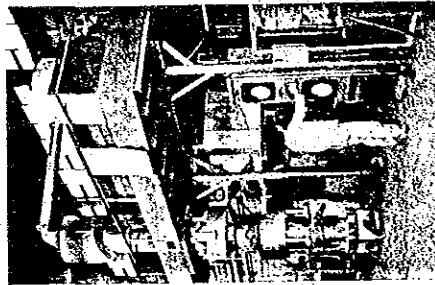
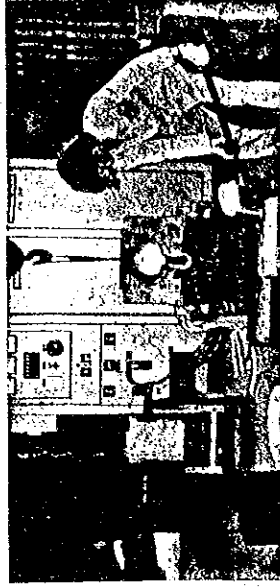
- High frequency induction furnace
- Crucible furnace
- Arc furnace
- Heat-treatment equipment

Main & subsidiary materials:

- CO-mold
- Dry mold
- Furan mold
- Metal mold

Gating & risering design

- Gating system
- Risering system
- Computer application



Technical Supervision



The Technical Supervision Department has carried out activities in the field of technical supervision for the purpose of protecting human lives and property from unexpected disasters.

A mutual agreement on technical cooperation was made in April 1979 between KIMM and TÜV (Technische Überwachungs Verein) of West Germany which is one of the most renowned technical supervision organizations in the world.

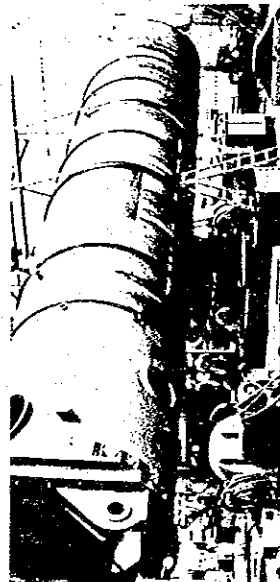
A number of projects have already been accomplished including the testing and inspection of the heating, ventilating, refrigerating and air-conditioning systems for Kimpo International Airport and the Wolsung Nuclear Power Plant. Further projects include quality assurance, life time testing and safety inspections for conven-

ventional power plants, chemical plants and others.

Furthermore, for the first time in Korea, safety inspection for spherical tanks has been performed using Acoustic Emission Methods.

Industrial Machinery Field

- Type approval testing and technical supervision of thermo-machinery,
- Testing and inspection of industrial machinery such as blowers, pumps and hydraulic and pneumatic equipments,
- Quality assurance of heating, ventilating and refrigerating systems,
- Safety inspection of pressure vessels, steam boiler plants and installations using compressed or liquified gases.



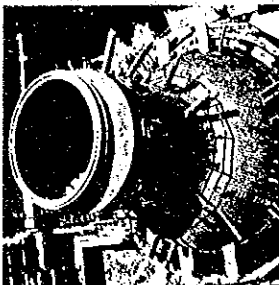
- Testing and inspection of conveying systems,
- Testing and evaluation of plant facilities and materials

Non-destructive Testing (NDT)

- Research and Development of new NDT methods,
- Modification and adaptation of modern NDT methods,
- Technical training of NDT engineers & technicians
- Testing and evaluation of materials,
- Maintenance and calibration of NDT equipments,
- Safety inspection for industrial facilities.

Industrial Safety Field

- Safety testing for combustible, caustic



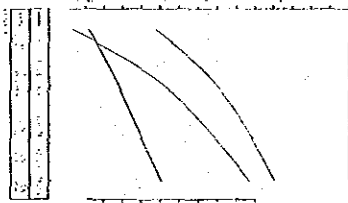
- and poisonous gases under internal pressure,
- Safety testing of lifting and hoisting equipment such as elevators, escalators, conveyors, cranes, etc.
- Safety testing of mining facilities and other equipment.

Anti-pollution Field

- Environmental protection such as noise abatement, air cleaning and sewage treatment,
- Separation, equipment testing and design
- Process equipment development



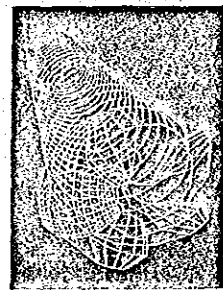
Ship Hydrodynamics



Powering Performance Prediction



▲ Distribution of axial and transverse velocity components



Vortex representation of propeller loading and trailing wake



Ship Structure

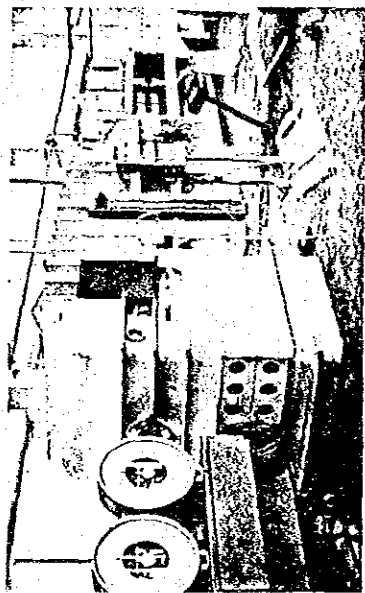
Experimental and theoretical research concerning resistance, propulsion, seakeeping and maneuverability of ships, and performance, cavitation and noise of propellers are undertaken with equipment such as a towing tank, a cavitation tunnel, a wave maker and a planar motion mechanism. Model tests are performed in both calm water and waves, with computerized data acquisition and reduction system.

Through analysis of model tests and development of computer programs, valuable design data for performance prediction and hull-form development of ships is provided. Also, studies are carried out of hull form series and the effects of high-efficiency propellers on energy saving-ship design.

Future research and development in this field play an important role in the following activities: 1) validation of new design, 2) generation of technical data, 3) identification remedy of suspected troubles, 4) investigation of new innovation as a design tool.

Major Projects

- Experimental and theoretical analysis of wave resistance and viscous resistance components.
- Potential and viscous flow around ship hulls.
- Prediction of propulsive performance of ships.
- Interaction of ship hull and propeller.
- Design and performance predictions for propulsive devices such as propeller, etc.
- Experimental and theoretical studies of cavitation, noise and erosion.
- Experimental and theoretical analysis of seakeeping qualities, maneuverability and stability.
- Auto-pilot systems and maneuvering simulation of ships.
- Hydrodynamic analysis of ship mooring systems and offshore structures.
- Data collection on ocean waves and data filing for ship designs.



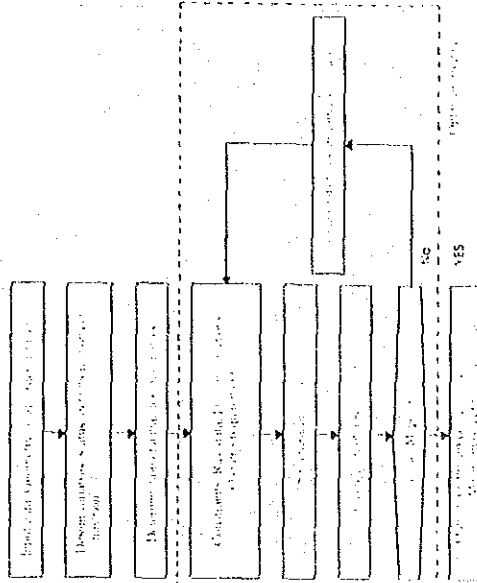
Stress contour in transverse web of tanker plerom by Calcomp-936 planner using program 'CONTOUR' developed by KIMM

Strength, noise and vibration in ships and ocean structures are analyzed and estimated through theoretical and experimental research. At the same time, through on-board measurement, KIMM investigates the criteria of stress, deformation, noise and vibration in structures, and pursues optimum design of ships and ocean structures. The future projects will involve development of a strength and vibration analysis program for ship structures, and investigation of the ship structures' safety through models and full-scale tests.

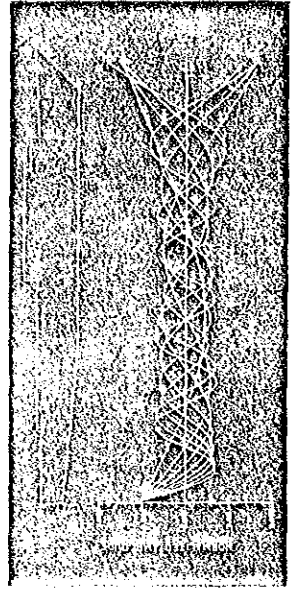
Being provided with a structure testing laboratory, KIMM will supply more technical service to shipyards and promote structural design capability more actively.

Major Projects

- Numerical analysis of static and dynamic response of structures
- Development of computer programs
- Experimental stress analysis, structural model testing, measurement and evaluation of noise and vibration.



Optimum structure design procedure



Normal mode shapes of hull girder

For the purpose of improving the productivity and quality of the shipbuilding industry, the main research effort is concentrated in the fields of shipbuilding technology and shipyard operation systems.

In line with the development of the domestic shipbuilding industry, efforts will be made to develop the computerization of shipbuilding technical information systems, a computerized system of production planning and control, standard shipbuilding methods and the welding technology.

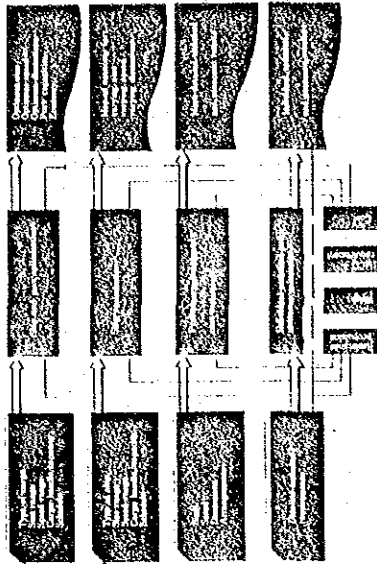
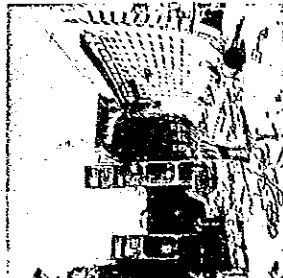
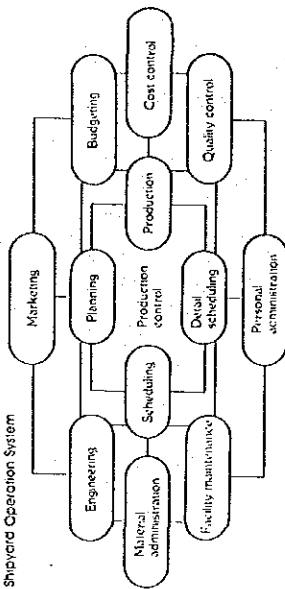
Such activities will increase the sophistication of ships due to high quality.

shorten shipbuilding time, and save shipbuilding costs. These activities also will contribute to the variation and sophistication of welded products.

Major Programs

- Shipbuilding methods
- Shipyard layout
- Welding technology
- Computerization of shipbuilding technical information systems
- Ship production planning and control
- Shipyard operation systems

Shipyard Operation System

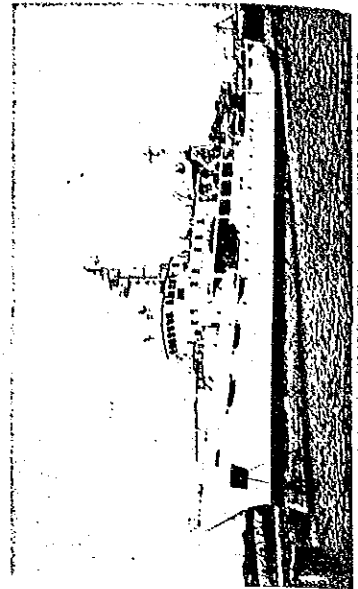


Initial design procedure of ship

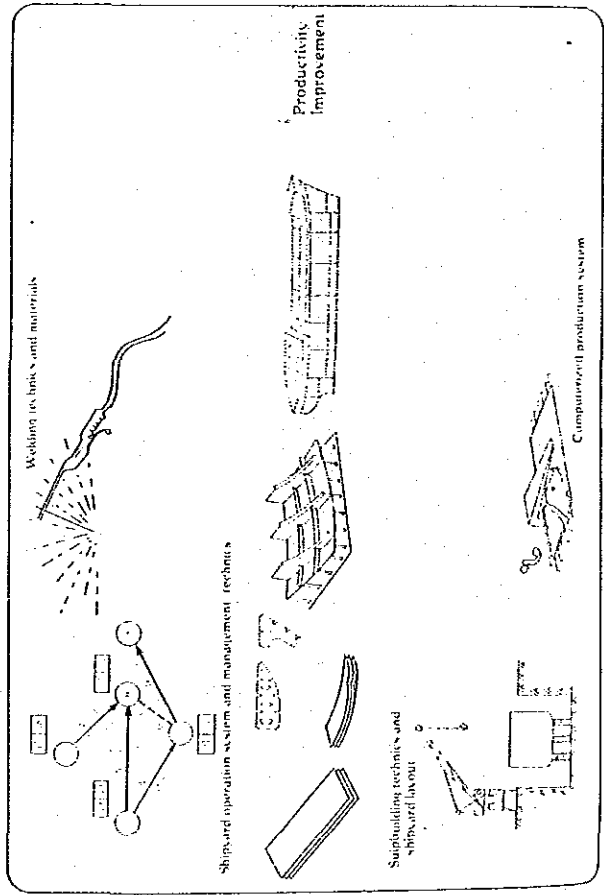
For the development of and self-reliance in the technique in ship design, KIMM undertakes design development of standard ships including coastal vessels and fishing vessels; design study of future ships; design support for special-purpose vessels; technical advice on home-made ships' performance and efficiency including stability, etc. In addition, an investigation of ship design is due to be handled from July 1981. KIMM is acquiring up-to-date techniques through co-operation in design with a famous British ship design consultant.

Furthermore, KIMM is striving for the development and supply of economic standard ships, optimized hull forms, special-purpose vessels, and future ships, including the study of international law and regulations related to safety at sea and the prevention of pollution of ports and sea routes.

- R & D of economical ship design based on optimization technology
- R & D of computerization in design process
- R & D of energy-saving ship design
- Technical advice in ship design (basic design, structure design, hull outfitting, machinery outfitting, electric outfitting, etc.)
- Collection, standardization and supply of ship design data



A luxury research ship, developed by KIMM for the role of modernization in fishing



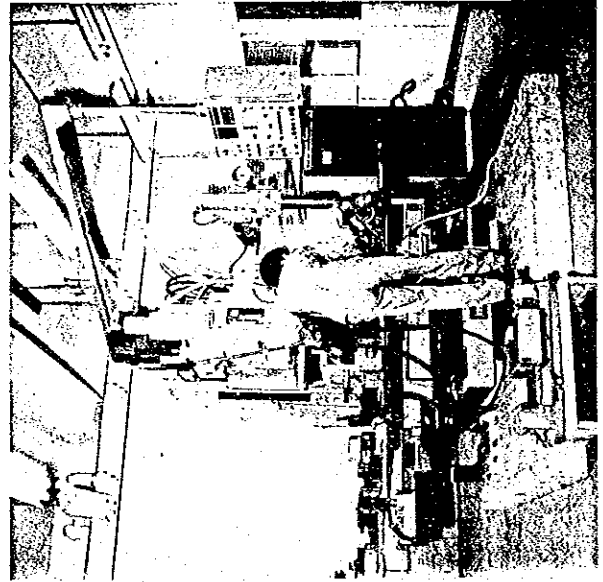
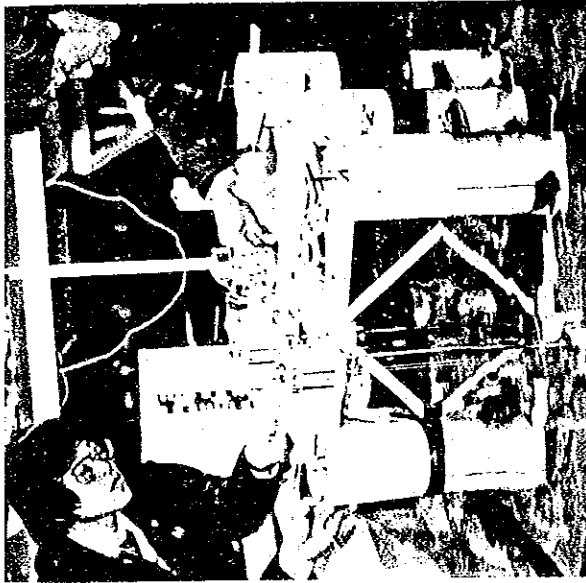
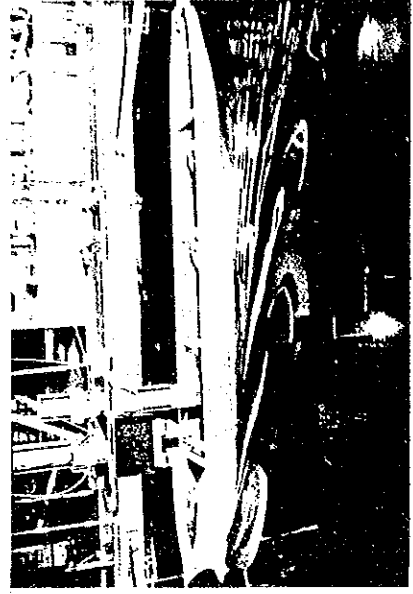
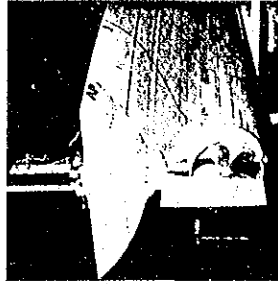
Model Testing

Test Items

- Resistance test
- Propeller open water test
- Self-propulsion test
- Flow visualization test
- Wake survey test
- Wave-form measuring test
- Resistance and propulsion test in the waves
- Seakeeping tests of ships and ocean structures
- Cavitation test of propellers
- Horizontal P.M.M. test (By 1965)
- Maneuvering test (By 1986)

To support experimental and theoretical research concerning resistance, propulsion, seakeeping, and maneuverability of ships, various model tests are performed synthetically in the towing tank, whose results are used to predict the performance of designed ships in the early design stage.

For these tests, KIMM uses available equipment and instruments with a computerized data acquisition system and estimate the full-scale performance of designed hull forms by computer programs for data reduction.

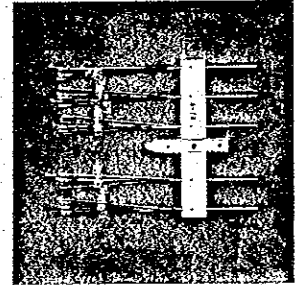
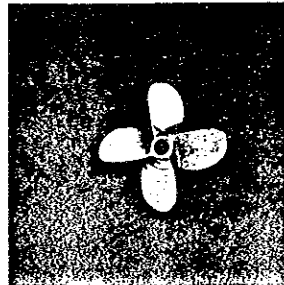


Towing Tank

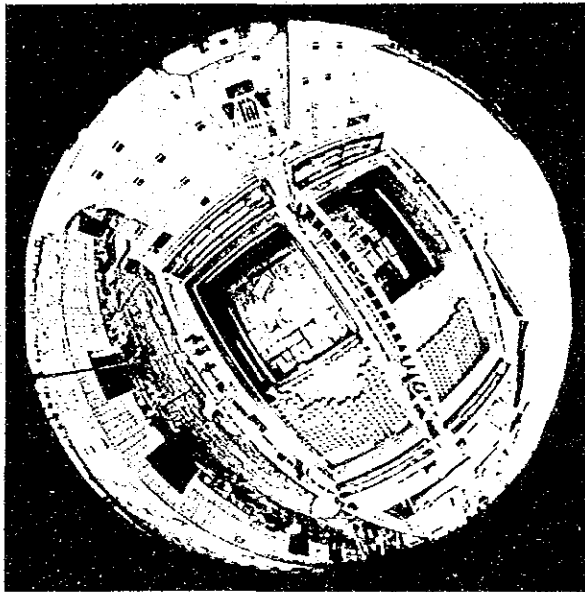
Length 216m/width 16m
water depth

Towing Carriage

Length 14m/breadth 17.2m
height 3.8m
speed, max 6m/sec with accuracy of 0.005m/sec



Maritime Economics

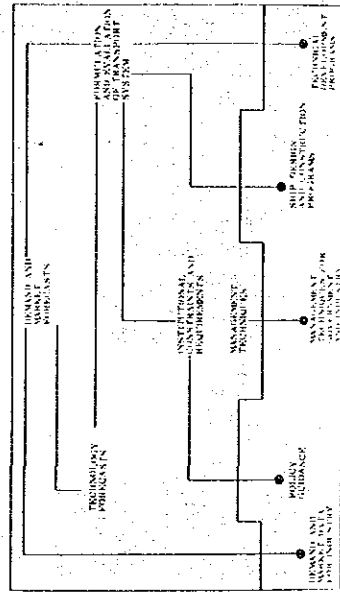


The Maritime Economics Division performs economic analysis of systems related to ships as a means for transportation.

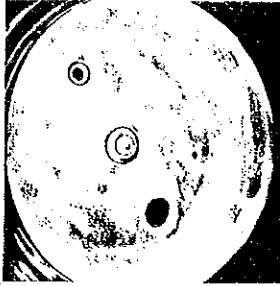
This research is comprised of studies of comprehensive systems, as well as specific aspects of shipbuilding, shipping and port requirements. The techniques used in this field include field surveys, data analysis and literature research.

Major Fields

- Transportation and shipbuilding market forecasts.
- Formulation and evaluation of various transport systems.
- Ship optimization.
- Research on the optimization of ship operation and support systems.



Shipboard Machinery and Materials



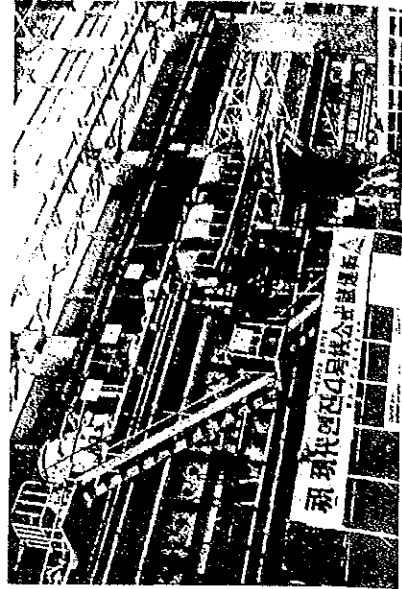
To get into stride for the localization of shipboard machinery and materials, research on and development of elemental technology for marine engines, machinery, and supporting activities such as testing and performance evaluation are mainly performed in this field.

Future research and development will involve the following projects: the utilization of waste heat in propulsion devices; alternative energy; speed control of mechanical and hydraulic speed regulators; localization of shipboard machinery and materials; screening of domestic shipboard machinery and materials for strategic export items; cooperative studies to develop new prototypes with domestic manufacturers.

Through these creative research and development activities, KIMM will give great benefits to the domestic shipbuilding industry directly.

Major Projects

- Development of alternative energy and engines
- Testing, analysis and evaluation of outfitings
- Development of elemental technology for shipboard machinery and technical support for its localization
- Support of elemental technology and policy projects to foster the shipboard machinery and material industry and its localization
- Establishment of evaluation, standard and performance tests in accordance with the Facilitation Law of Shipping Promotion
- Type approval projects to meet international regulations including IMCO, SOLAS, etc.



Technical Support

machines, grinding machines, shapers, planers.

Inspection of Medical Equipment

Both imported and locally manufactured medical equipment to be sold in domestic markets are inspected by this center.

The center is designated by the government as the inspection agent for 20 items including diagnostic X-ray apparatuses and infant incubators which are listed in the Pharmaceutical Affairs Law to require pre-inspection prior to sales.

Testing required for Type Authorization by the Electrical Appliances and Material Control Law

Both imported and manufactured electrical appliances and materials to be sold in domestic markets are tested by this center, as defined in this law. These products also must receive type authorization from the Industrial Advancement, Administration (IAA).

There are some 250 items defined in this law under 15 categories such as wire and cable, fuses, light bulbs, small size motors, motor operated appliances and heating appliances.

Testing required by Heat Treatment Law

Locally manufactured heating appliances to be sold in domestic markets are tested by this center, as defined in this law. These products also must receive type authorization from the Ministry of Energy & Resources.

Test Items

—16 items including burners and boilers.

system.
—Testing & approval of the performance of vehicle emission gas analyzers.
• CO analyzers, smoke meters, sound level meters.
—Calibration & maintenance of environmental pollution equipment and air & water monitoring equipment installed in 24 cities, provinces and drainage basins of 5 rivers.

Consignment Testing

With long experience, excellent technical manpower and up-to-date facilities, this center functions as one of the prime goods testing offices for the Office of Supply and does testing projects for company buyers.

Inspection required by the Korean Export Products Inspection Law

The following commodities for export are required by the Korean Export Products Inspection Law to be inspected by this center.

Inspection Items

—152 items including machine tools, metalworking machines, bolts & nuts, tools, pumps, a class of cast iron valves, all metal products.

Inspection required the Industrial Products Quality Control Law

The following commodities for sale (including imported goods) are required by the Industrial Product Quality Control Law to be inspected by this center.

Inspection Items

—23 items including engine lathes, automatic lathes, milling machines, sock knitting machines, circular knitting

Main Functions of Industrial Technology Development Center

This center has played an overall, wide role in the technical support projects donated for businesses at research institutes under the umbrella of the Ministry of Science and Technology and a bridge role between businesses and other research institutes. Besides, this center includes technical support projects in fields of the machinery, metals and shipbuilding industries with overall functions of three stations of KIMM, located in Cheongwon, Seoul and Daeduk.

—Testing and inspection services on behalf of foreign test and approval organizations.

—National Supervizing Inspectorate, NSI activities are carried out in Korea as a full member of the IEC quality assessment system for electronic components (IECQ System).

—Technical collaboration with 15 organizations of 12 countries such as USA, FCC and VDE.

—Certification services for accepted products which KIMM conducts in accordance with its own technical standards.

With long experience and accumulated technology in field guidance, this center supports new technology through overseas training and the invitational guidance of foreign specialists.

KIMM has established regular and short-term courses for cultivation of high skilled manpower. Also it coordinates and

supports technical cooperation between prime contractors and their parts sub-contractors.

- Consultation of technical guidance and technology transfer.
- Recognition of promising small and medium companies.
- Acquisition of foreign certifications.
- Transmission of new technology.
- Automation of production line.
- Consultation of bottle-neck technology.
- Dissemination of research and development results.

Transmission of Industrial Standards

The center is maintaining and is transmitting overseas industry standards of 26 organization in 50 thousand categories from 8 countries including standards such as UL, FCC, JIS, IEC, CSA, MIL, ASTM, ANSI and DIN.

Research and Development

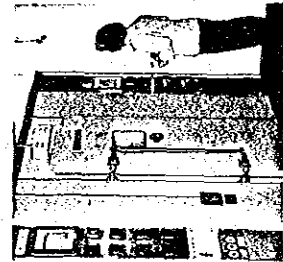
This center gives technical guidance for business and has the following active R & D projects:

- Research and development through testing and inspection
- Research and development of testing measurement instruments
- Development of precision processing technology

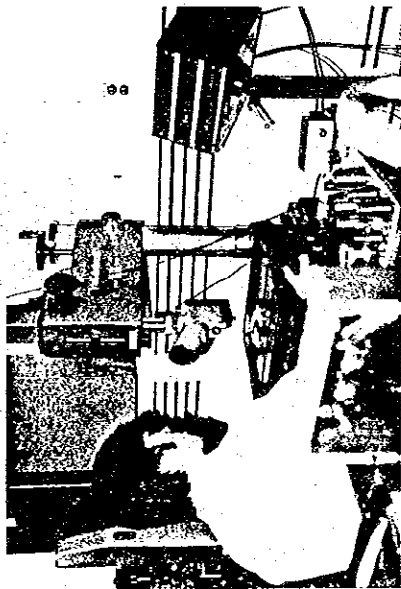
Evaluation of the Performance of Pollution Facilities

Prevention of pollution through performance testing and inspection of organizations which is authorized by the Environmental Preservation Law, and includes the follows:

- Inspecting the capacity of industrial waste disposal facilities.
- Combustion chamber, dissolution facilities, dissolved air flotation



Standards Maintenance and Calibration



- As a national secondary standard organization, KIMM provides standard calibration services to manufacturers.
- The areas of standards maintenance and calibration include length, mass, time, current, temperature, and luminous intensity.
- Calibration service for users' instruments located far from KIMM.
- Mobile calibration service covering the whole country.



Technology Transfer

Technical Transfer Activities

Introduction of new technology to enterprises

- Guidance to enterprises on manufacturing technology for material development, machine design and manufacturing to enable them to use research results in the development of the machinery, metals, and shipbuilding fields.

Ex.1) Development of low hydrogen type iron powder coated electrodes for high tensile steel

Qualities	Advantages
<ul style="list-style-type: none"> ◦ Mechanical property of weld metal ◦ High yield strength: 50.5kg/mm² ◦ High tensile strength: 55.4kg/mm² ◦ High impact value: 27kg/cm²(90°C) 	<ul style="list-style-type: none"> ◦ Quality improvement ◦ Price reduction (Ability to use flux of cost less than 20won less/kg) ◦ Ability to export to six countries including U.S.A.

Guidance for acquiring foreign certification

- Guidance in securing quality levels equivalent to the advanced industrial countries in order to acquire international approval marks, and reinforcing images of high qualities products
- Guidance in completing applications

Ex.2) "UL" mark acquired for domestic oil burner

Qualities	Advantages
<ul style="list-style-type: none"> ◦ High caloric value: 527Mkcal/hr ◦ Large fuel tank capacity: 1.8kgal ◦ Large heating area: 17.36m² 	<ul style="list-style-type: none"> ◦ Ability for overseas export ◦ High profit: about 17.5USD/unit ◦ Last year contact for 140,000 units with the U.S. markets

Special emphasis on localization of products

- Localization development guidance using special processing technology for producing high priced products and common core parts which are now imported.



Ex.3) Plastic die-wheel improvement for nylon zipper

Qualities	Advantages
<ul style="list-style-type: none"> ◦ Circular design: 560Div. ◦ Accumulate tolerance: 2.100mm ◦ 1 year life span (800m/day) 	<ul style="list-style-type: none"> ◦ Replacement of model imported ◦ Increased localization

New product development through foreign agency cooperatives

- Enable high value added new product development by introducing recent technical information through 23 foreign cooperation agencies and 4 overseas offices of KIMM.



Ex.4) Overflow proof valve development for L.P.G. automobile use.

Qualities	Advantages
<ul style="list-style-type: none"> ◦ No flow meter 2/min-6/min ◦ No seizure 	<ul style="list-style-type: none"> ◦ Imports money saved 300,000 USD/year ◦ Increased production

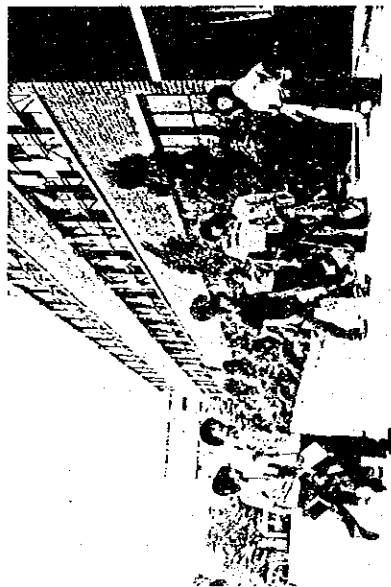
Technical Training

Regular Course

Technical Training School equivalent to 2-year course college

Subjects and Numbers of Students

Subjects	1st year		2nd year	
	Day-time Class	Night-time Class	Day-time Class	Night-time Class
Jig and tool design	35	35	35	35
Precision metrology	35	35	35	35
Industrial instruments	35	35	35	35
Electronic instruments	35	35	35	35
Electronic appliances	35	35	35	35
Total	175	175	175	175

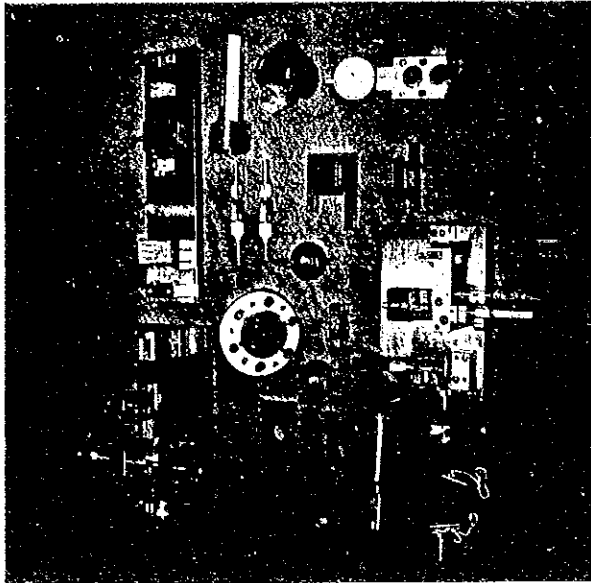


Short-term Course

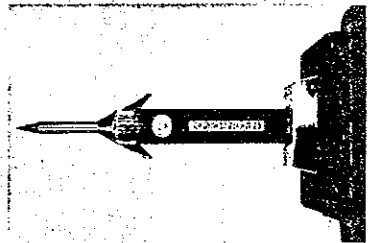
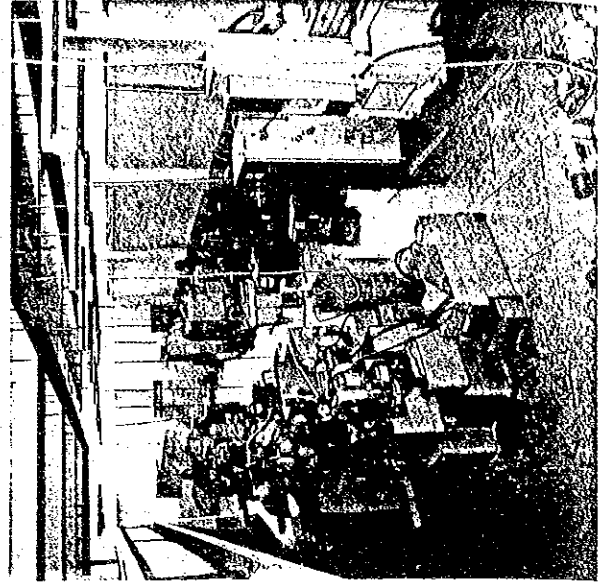
Subjects and Numbers of Students

Fields	Subjects
Precision machinery	Process engineering, air-craft inspection, jig and tool design, precision metrology, quality inspection, etc.
Electronics	Electronic instruments, electronic communication, scientific instruments, etc.
Special technical seminars	At the request of trainees

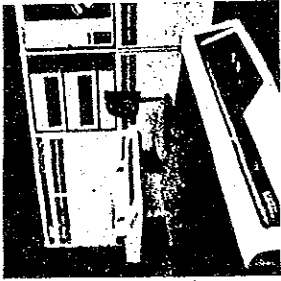
Machinery Industry Promotion Activities



- Special training in precision industrial technology.
- Precision inspection of machine tools.
- Enhancement of precision level of manufacturing firms.
- Compensation of scale for precision measuring equipment
- Guarantee of precision of special precision gauges
- Development of Special Purpose Machines.
- Development of Precision Measuring Instrument.
- Consultation & Technical Guidance on Precision Industrial Technology.
- Sponsoring precision contests for the development of precision and measuring practice, especially in the field of precision machinery industry. The first prize winner is awarded the "Power of Precision Industry Promotion" which is presented by the President of the Republic of Korea.

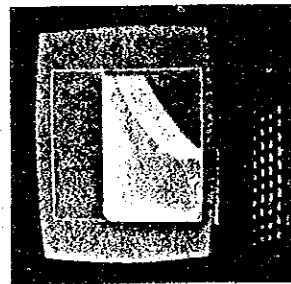


Computer Application



According to the specified functions of the three stations, KIMM is equipped with computer systems: VAX-11/780 (2MB) at the Changwon Station; PDP-11/34 (256KB) at the Industrial Technology Development Center; Prime 750 at the Ship Research Station. Future projects will be focused on the computerization of R & D in science and technology covering the following:

- Material research on machinery and metals
 - Shipping structures and production design
 - Texting and inspection of machinery and electrical products
 - Standard correction
 - Drafting systems
 - Technical information search
 - Mathematical analysis
- In addition, management control will be improved by virtue of computerization.



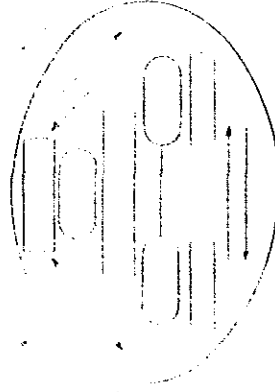
Technical Information Service

For the prompt utilization of the most up-to-date and effective information concerning machinery, metals, shipbuilding technology and foreign market trend, KIMM utilizes its four overseas offices and 15 foreign organizations.

The Technical & Trade Information Service Division processes valuable information and provides collection, classifications, analysis, publication and other services. The rich collection of more than 20,000 books and 500 kinds of periodicals at the libraries are also available sources to be utilized in KIMM's R & D activities and information services to domestic markets as well.

All these activities are described in the valuable contents of two outstanding publications:

- "Technology Transfer," a quarterly machinery and shipbuilding technical information published in the Korean language
- "Machinery Korea," a monthly providing effective information about promising products and features on Korea's heavy industry including machinery, shipbuilding, plants and electronics published in English





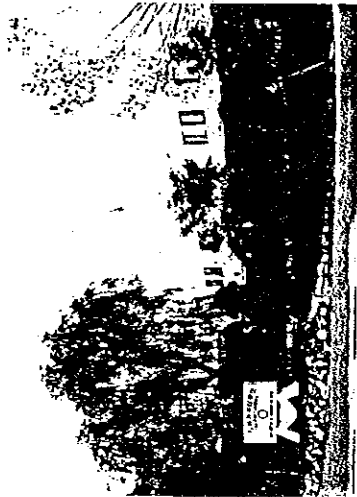
CHANGWON STATION

ADDRESS: CHANGWON INDUSTRIAL COMPLEX 720, SANGNAM-
DONG, CHANGWON, KYONGSANGNAM-DO, KOREA
P.O. BOX: CHANGWON P.O. BOX 41
CABLE: KIMWROK
TELEX: KIMWROK 431835
TELEPHONE: CHANGWON 82-1621



SHIP RESEARCH STATION

ADDRESS: 171, JANG-DONG, JOONG-GU, DAJEON,
CHUNGNAM
P.O. BOX: DAEJUK SCIENCE TOWN P.O. BOX 1
CABLE: KRISPOK DAJEON
TELEX: KRISPOK 435604
TELEPHONE: DAJEON 822-7401



INDUSTRIAL TECHNOLOGY DEVELOPMENT CENTER

ADDRESS: 222-13, GURO-DONG, GURO-KU, SEOUL, 40, KOREA
P.O. BOX: GURO DANU P.O. BOX 27
CABLE: FINCEN SEOUL
TELEX: FINCEN 428549
TELEPHONE: 863-0911

INFORMATION



<資料-10>

BRIEF HISTORY

- September 11, 1981 The president directed the Ministry of Labour to take measures for fostering skilled manpower and promotion of employment security.
- November 10, 1981 A plan for promoting establishment of the Korea Vocational Training and Management Agency was finalized.
- December 17, 1981 The Korea Vocational Training and Management Agency Act was promulgated. (Law No. 3506).
- February 26, 1982 Mr. Eung-Sun Lee took office as the first president of the Agency.
- March 8, 1982 The enforcement decree for the Korea Vocational Training and Management Agency Act was promulgated. (Presidential Decree No. 10750).
- March 18, 1982 The Korea Vocational Training and Management Agency was registered as a corporate body.
- June 19, 1982 The Central Vocational Training Institute, the Ministry of Labour, was placed under the Agency.

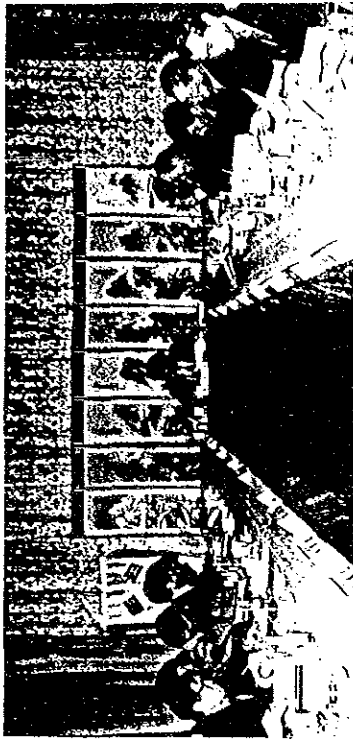
OBJECTIVES

Through activities relevant to vocational training, research and development, and technical qualification tests, the agency seeks to achieve effective vocational training and technical qualification tests while contributing to enhancement of the national welfare and development of national economy.

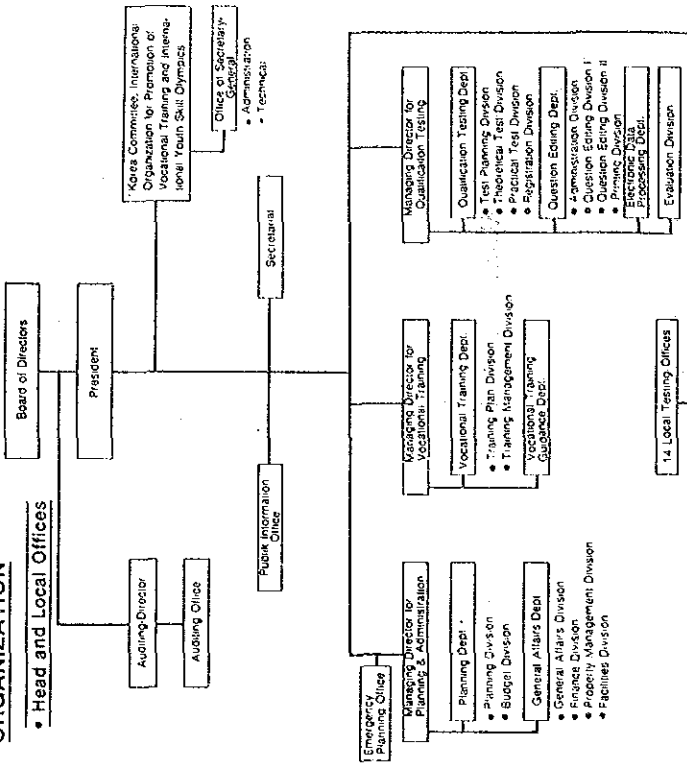


FUNCTIONS

- Establishment and operation of vocational training facilities
- Execution of and guiding activities for vocational training
- Training and management of vocational training instructors
- Execution of national technical qualification tests
- Registration and administration of the national technical qualification holders
- Study of and research on vocational training and qualification tests
- Holding of national and international vocational training competitions



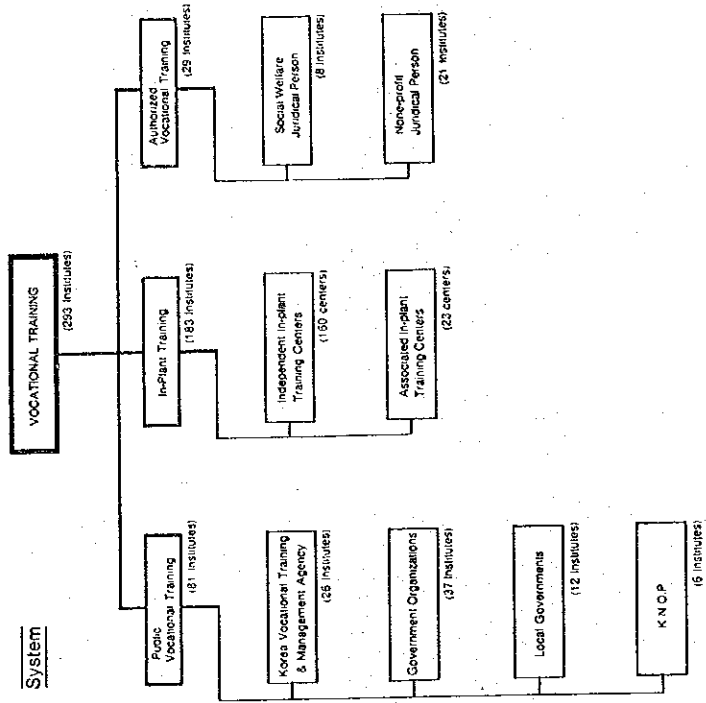
ORGANIZATION



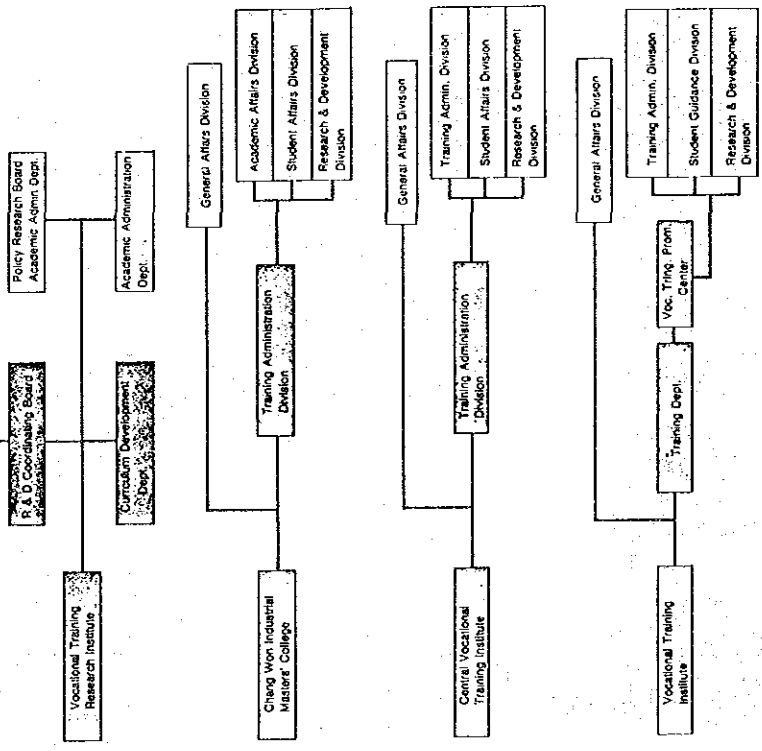
VOCATIONAL TRAINING

- Objectives**
1. Improvement of skilled manpower.
 2. Continued expansion of vocational training
 3. Instructor training and upgrading quality of instructor.

System

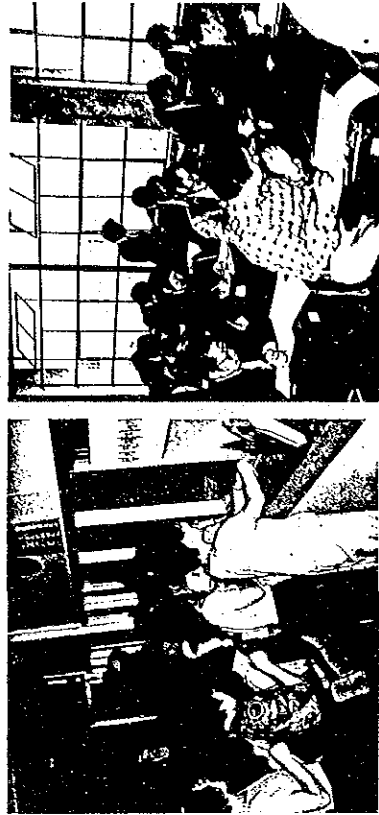
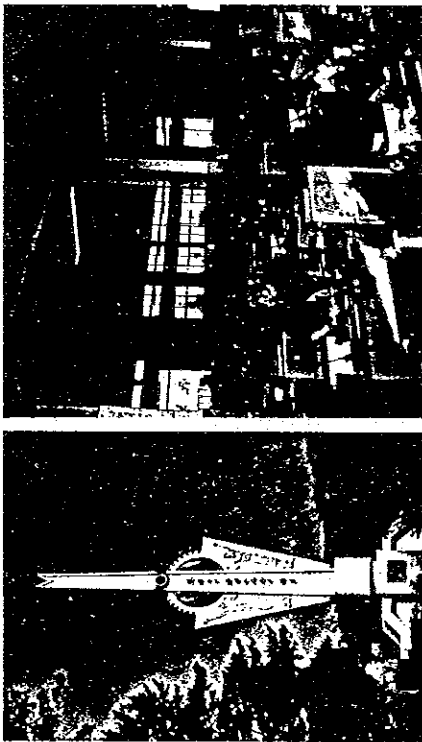


Subordinate Organizations



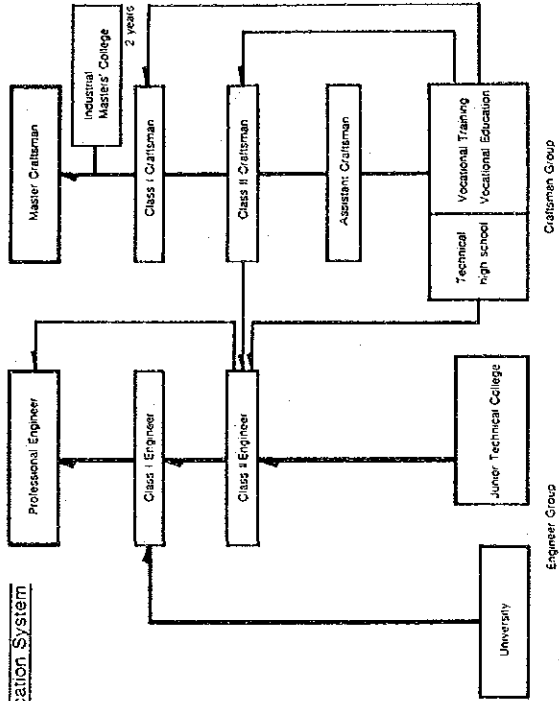
Officers

President	Eung-Sun Lee
Directors (Standing)	Kim Yong-Hae
"	Kim Tak-Kyo
"	Bang Suk-Mok
"	Kyu-Shik Chang
Auditing Director	Kim Jae Joon



QUALIFICATION TEST

Qualification System



Trainees of Vocational Training Institutes

Type	Trng. Organs.	Nr. of Organs	Training Trade	Nr. of Trainees (1981)	Nr. of Trainees (1982)
	TOTAL	203		32,255	53,355
	Sub-Total	81		25,655	25,885
Public Vocational Training	Korea Vocational Training & Management Agency	26	Commonly demanded trade by all industries that is difficult to train in the in-plant training centers (tool and die maker, machinal and electrical repair, strategic trade for export, secondary processing, dyeing, textiles). Training of instructor through regular and license course and craftsman and master craftsman courses are offered	13,331	14,055
	Government Organization	48	Trade demanded by Government organization (tobacco making, ceramics and trade for upgrading skill of their own employees (carpentry, printing and architecture).	7,810	7,500
	Local Government	13	Training of agricultural trade farm workers and trade for increasing farmers' income (knitting, sewing, construction)	4,219	4,000
	K.N.O.P.	6	Korean employees in EUSA. (Computer, Programming)	305	320
In-Plant Training	Sub-Total	133		20,130	22,500
	Independent In-plant Training Centers	160	Training of single class workers for their own requirements (textile, electronics, shoe-making)	9,983	12,500
	Joint Training Centers	23		10,147	10,000
	Sub-Total	29		5,471	5,000
Authorized Vocational Training	Social Welfare Juridical Body	8	Training of trade which is not covered in public and in-plant training centers (typewriting, retyping, telephone operation, etc.)	1,132	2,000
	Non-Freit Juridical Bodies	21		5,159	3,000

Qualification Tests for Engineer

1. Eligible Applicants are;

Professional Engineer

- 1) Class I Engineer qualification holder with practical experience of 7 years or more in the same technical field.
- 2) Class II Engineer qualification holder with practical experience of 9 years or more in the same technical field.
- 3) 4-year college graduate with practical experience of 9 years or more in the same technical field.
- 4) Junior technical college graduate with practical experience of 11 years or more in the same technical field.
- 5) Those with practical experience of 20 years or more in the same technical field.

Class I Engineer

- 1) Class II Engineer qualification holder with practical experience of 2 years or more in the same technical field.
- 2) Graduate of the graduating class of a 4-year engineering college.
- 3) Graduate of junior technical college with practical experience of 2 years or more in the same technical field.
- 4) Those who have completed or is expected to be completed the technical training courses at the technical training institutes designated by the Ministry of Labour which is designed to produce Class I Engineer in the specific technical-qualification categories.
- 5) Those with practical experience of 10 years or more

Class II Engineer

- 1) Graduate of the graduating class of a junior technical college in the same technical field.
 - 2) Class I Craftsman qualification holder in the same technical field.
 - 3) Class II Craftsman qualification holder with practical experience of 3 years or more in the same technical field.
 - 4) High school graduate with practical experience of 4 years or more in the same technical field.
 - 5) Those with practical experience of 7 years or more in the same technical field.
- * The Assessment of practical experience of those who are specialized in different technical fields is not same as one in the same technical field.

2. Testing Criteria

Class	Criteria
Professional Engineer	A man of high degree of professional knowledge and practical experience in the respective technical field who is capable of doing planning, research, designing, analysis, experiment work, operation, implementation or evaluation of technical matters, and of providing guidance to and supervision of such technical matters.
Class I Engineer	A man of fundamental engineering knowledge who is capable of applying the knowledge in the respective engineering field.
Class II Engineer	A man of basic engineering knowledge and practical application capabilities.

3. Testing Method

- a. Professional Engineer
 - Written tests (Thesis), career evaluation and oral test
- b. Class I & II Engineer
 - Written test (multiple choice) and practical skill test (practical works or written test).

Qualification Test for Craftsman

1. Eligible Applicants are;

Master Craftsman

- 1) Class I Craftsman who completed industrial masters' course and win more than 7 years practical experience (training period of masters' course is counted as practical experience).
- 2) Class I Craftsman with more than 10 years practical experience and with completion of technical training courses designated by the Ministry of Labour.

Class I Craftsman

- 1) Class II Craftsman with more than 3 years practical experience in the same technical field (as for technical high school graduate, 2 years practical experience is accepted).
- 2) Junior technical college graduate or the graduating class of the college who are in the same technical field (more than 2 years practical experience are required for those who specialized in the other technical field).

- 3) Prize winners in the International Vocational Training Competition.
- 4) Graduate of the graduating class of the training organization conducting courses equivalent to Class I Craftsman which is designated by the Ministry of Labour.
- 5) High school graduate with more than 4 years practical experience.

Class II & Assistant Craftsman

No limitation in qualification.

2. Testing Criteria

Qualifications	Criteria
Master Craftsman	A man of the highest skilled techniques in the respective technical fields who is capable of managing jobs and supervising matters requiring particular skill.
Class I Craftsman	A man of highly skilled techniques in the respective technical field who is capable of performing major tasks with respect to applied production, manufacturing, operation, rehabilitation, maintenance, inspection, and relevant skilled tasks.

Qualifications	Criteria
Class II Craftsman	With intermediately skilled techniques in the respective technical field, he shall be capable of performing technical tasks related to production, manufacturing, operation, rehabilitation, maintenance, and inspection.
Assistant Craftsman	With lower class techniques in the respective technical field, he shall be capable of helping higher class craftsman or perform various types of technical works under their supervision.

3. Testing Method

- a. Master Craftsman
 - Written test (Thesis, multiple choice type)
 - Career evaluation
 - Oral test
- b. Class I & II Craftsman
 - Written test (multiple choice)
 - Practical skill test
- c. Assistant Craftsman
 - Practical skill test

Qualification Test for Service Field

1. Eligible Applicants are;

Cook

(Chief Cook)

- 1) Class I Cook qualification holder with practical experience of 7 years or more.
- 2) Graduate of junior college specialized in the same service field, who holds qualification for Class I Cook with more than 5 years of practical experience.

(Class I Cook)

- 1) Class II cook qualification holder with more than 7 years of practical experience.
- 2) Graduate of junior college specialized in the same technical field who has more than 5 years of practical experience.
- 3) Graduate of junior college specialized in the same technical field who holds qualification for Class II Cook with more than 3 years of practical experience.
- 4) Graduate of high school with more than 9 years of practical experience.

(Class II Cook)

- 1) No limitation in qualification.

Confectionery and Pastry Maker

(Chief Confectionery Maker)

- 1) Class I Confectionery Maker qualification holder with more than 7 years of practical experience.
- 2) Graduate of junior college specialized in the same technical field, who holds qualification for Class I Confectionery Maker with more than 5 years of practical experience.

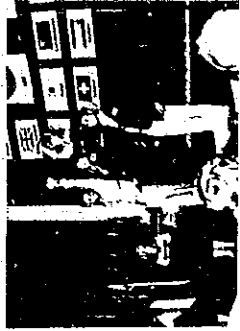
(Class I Confectionery Maker)

- 1) Class I Confectionery Maker qualification holder with more than 7 years of practical experience.
- 2) Class II Pastry Maker qualification holder with more than 7 years of practical experience.
- 3) High school graduate with more than 9 years of practical experience.

(Class II Confectionery/Pastry Maker)

- 1) Assistant Confectionery/Pastry Maker qualification holder with more than 1 year of practical experience.
- 2) Those who have completed or is expected to complete the technical training course designated by the Ministry of Labour.
- 3) Those who have more than 2 years of practical experience in the same service field.

KOREA COMMITTEE, INTERNATIONAL ORGANIZATION FOR PROMOTION OF VOCATIONAL TRAINING AND INTERNATIONAL YOUTH SKILL OLYMPICS



Brief History

- January 1966 Founded Korea Committee, International Organization for Promotion of Vocational Training and International Youth Skill Olympics.
- October 1966 Admitted to the International Organization for Promotion of Vocational Training and International Youth Skill Olympics as a member country.
- November 1966 Held first National Vocational Training Competition.
- July 1967 Participated in the 16th International Vocational Training Competition for the first time.
- July 1977 Achieved the first place in the 23rd International Vocational Training Competition.
- August 1978 Held 24th International Vocational Training Competition in Busan.
- March 1982 Reorganized to place under the Korea Vocational Training and Management Agency.
- August 1983 Achieved 5th successive winning in the International Vocational Training Competition.

Functions

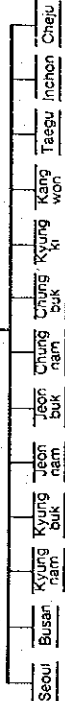
1. Holding of and participation in the international Vocational Training Competition.
2. Holding of National Vocational Training Competition.
3. Holding of the provincial Vocational Training Competition.
4. Exchange of the technical informations with other countries.
5. Management of participants and prize winners in the National and International Vocational Training Competition.

Vocational Training Competitions

Participation in the International Vocational Training Competition.

Holding National Vocational Training Competition (Selection of candidates who will participate in the International Vocational Training Competition).

Holding Provincial Vocational Training Competition (Selection of candidates for the National Vocational Training Competition).



(Assistant Garbage Worker)
1) No limitation in qualification

2. Testing Criteria;

Class	Criteria
Chief	A man of the highest skilled techniques in the respective service field who is capable of administering tasks and supervising matters requiring the particular skill.
Class I	A man of highly skilled techniques in the respective service field who is capable of performing service management and supervising tasks in relation with service management.
Class II	With intermediately skilled techniques in the respective service field, he shall be capable of performing tasks and their relating works.
Assistant	With lower skilled techniques in the respective service field, he shall be either capable to assist the tasks of the higher class service or to conduct tasks under their supervision.

3. Testing Method

- a. Chief
 - Written Test (Thesis and multiple choice type question)
 - Career evaluation
 - Oral tests
- b. Class I & II
 - Written test (multiple choice)
 - Practical skill tests
- c. Assistant
 - Practical skill tests

Registration of Qualification Holders

1. Registration of national technical qualification holders.
2. Renewal registration of national technical qualification holders.
3. Issuance of technical qualification certificate.
4. Provision of technical manpower information with organization concerned.
5. Reference and confirmation of qualification holders.
6. Reissuance of national qualification certificate.

Bar tender

- (Class I Bartender)
1) Class II Bartender qualification holder with more than 7 years of practical experience.
2) Graduate of junior college specialized in the same technical field with more than 5 years of practical experience.
3) Graduate of junior college specialized in the same technical field, who holds qualification for Class II Bartender with more than 3 years of practical experience.

Barber/Beautician

- (Class II Barber/Beautician)
1) Those who have more than 2 years of practical experience in the same service field.
2) Those who have completed or is expected to complete the technical training courses designated by the Ministry of Labour.

Chief Barber/Beautician

- (Class I Barber/Beautician)
1) Class I Barber/Beautician qualification holder with more than 7 years of practical experience.

Class I Barber/Beautician

- (Class II Barber/Beautician)
1) Class II Barber/Beautician qualification holder with more than 7 years of practical experience.
2) High school graduate with more than 9 years of practical experience in the same service field.

Class II Barber/Beautician

- (Class II Barber/Beautician)
1) No limitation in qualification.

Piano-Tuner

- (Class I Piano-Tuner)
1) Class I Piano-Tuner qualification holder with more than 5 years of practical experience.
2) Those who have completed the training courses designated by the Ministry of Labour and have more than 5 years of practical experience.
3) Those who have more than 10 years of practical experience in the same service field.

Class II Piano-Tuner

- (Class II Piano-Tuner)
1) Those who have completed the training courses with more than 1 year of practical experience in the same service field.

Garbage Worker

- (Class II Garbage Worker)
1) Assistant Garbage Worker qualification holder with more than 2 years of practical experience.
2) Those who have completed or is expected to complete the training courses designated by the Ministry of Labour.

ORGANIZATIONS

VOCATIONAL TRAINING RESEARCH INSTITUTE

BRIEF HISTORY

November 1, 1979: Research and Development Office, Vocational Training Bureau in the Ministry of Labour was established.
 April 23, 1980: The above Office became independent as Vocational Training Research Institute under the Labour Welfare Corporation.
 March 18, 1982: The Institute was placed under the Korea Vocational Training and Management Agency.



ROSTER OF OFFICER

Honorary Chairman	Soo-Chang Chung (5 ex-chairmen)	Chairman, The Korea Chamber of Commerce & Industry.
Counselor	Chung Ju-Yung	Chairman, Korean Traders Association
"	Ryu Ki-Jung	Chairman, The Federation of Korean Industries
"	Yoo chong-Yul	Chairman, Bankers Association of Korea
"	Eung-Sun Lee	President, The Federation of Small Business
Chairman	Koo Cha-Kyung	President, Small and Medium Industry Promotion Corporation
Vice-Chairman	Lee Choon-Lim	Chairman, Korea Vocational Training & Management Agency
"	Yoon Young-Suk	Chairman, The Lucky Group
"	Jung Jae-Eon	Chairman, The Hyundai Heavy Industries Co., Ltd.
"		President, Dae Woo Heavy Industries Ltd.
"		President, Sam Sung Electronic Industries.

The Contents of winning of Prize by Trade

Trade	Year participated														place
	1967	1968	1969	1970	1971	1972	1973	1975	1977	1978	1979	1981	1983		
1 Fitting				H-M	G	G	G	G	G	G	G	G	G	G	
2 Press Tool Making				H-M	H-M	B	B	B	B	B	B	B	B	B	
3 Instrument Making				H-M	H-M	B	B	B	B	B	B	B	B	B	
4 Engineering Drawing	H-M	S.		H-M	S	B	B	B	B	B	B	B	B	B	
5 Turning					S	G	G	G	G	G	G	G	G	G	
6 Milling					S	S	S	S	S	S	S	S	S	S	
7 Foundry Moulding					G	S	S	S	S	S	S	S	S	S	
8 Wood Pattern Making					G	S	S	S	S	S	S	S	S	S	
9 Constructional Steel Work					G	S	S	S	S	S	S	S	S	S	
10 Sheet Metal Work					G	S	S	S	S	S	S	S	S	S	
11 Panel Beating					G	S	S	S	S	S	S	S	S	S	
12 Gas Welding					H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	
13 Electric Welding					G	S	S	S	S	S	S	S	S	S	
14 Industrial Electronics					H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	
15 R/TV Repairing					S	S	S	S	S	S	S	S	S	S	
16 Industrial Wiring					H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	
17 House Wiring					S	S	S	S	S	S	S	S	S	S	
18 Stonemasonry					H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	
19 Bricklaying					H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	
20 Plaster Work					G	S	S	S	S	S	S	S	S	S	
21 Painting					B	B	B	B	B	B	B	B	B	B	
22 Plumbing					H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	
23 Cabinet Making					H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	
24 Joinery					H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	H-M	
25 Carpentry					G	S	S	S	S	S	S	S	S	S	
26 Jewellery					G	G	G	G	G	G	G	G	G	G	
27 Tailoring					G	G	G	G	G	G	G	G	G	G	
28 Shoes Making					S	S	S	S	S	S	S	S	S	S	
29 Ladies Hairdressing					S	S	S	S	S	S	S	S	S	S	
30 Men's Hairdressing					S	S	S	S	S	S	S	S	S	S	
31 Ladies Dressmaking					S	S	S	S	S	S	S	S	S	S	
32 Watch Repairing					G	G	G	G	G	G	G	G	G	G	
33 Upholstery					G	G	G	G	G	G	G	G	G	G	
34 Automobile Mechanics					G	G	G	G	G	G	G	G	G	G	

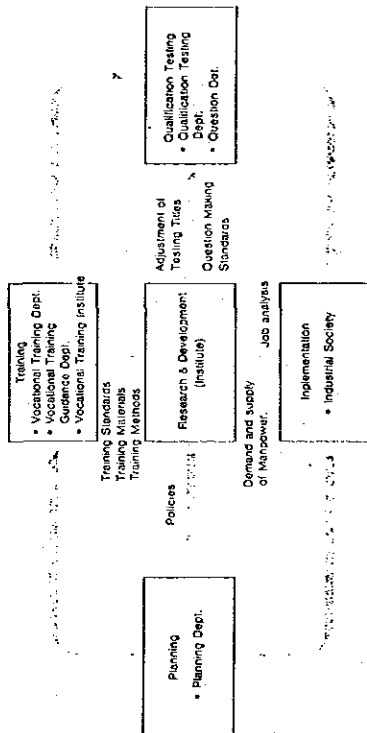
* Achievement (place)

MAJOR FUNCTIONS

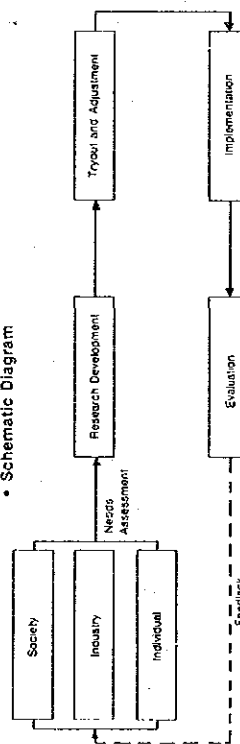
1. Study on policies concerning manpower development and management focused on vocational training and technical qualification testing.
2. Collection, analysis and synthesis of technical information and promotion of domestic and international cooperation in conducting research projects.
3. Study on vocational training and qualification testing through job analysis.
4. Study on aptitude test and vocational guidance and counseling.
5. Study on vocational training curricula, technical guidance and teaching methodologies concerning vocational training.
6. Development of vocational training materials, and approval of materials for use in training.
7. Development of audio-visual materials for vocational training.

ROLES OF INSTITUTE

- Roles shared by Agency and Institute



Schematic Diagram

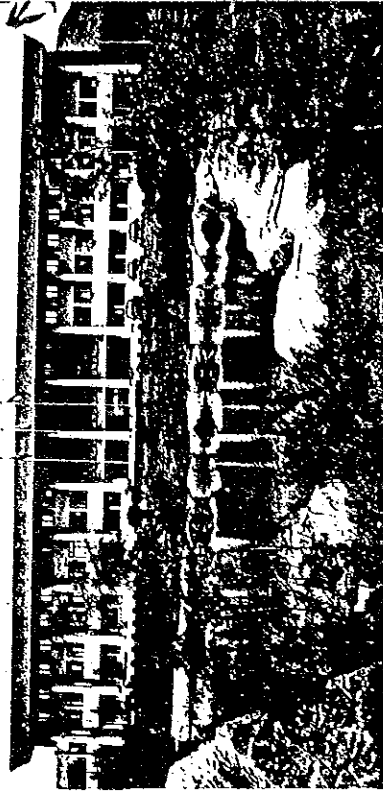


CHANGWON INDUSTRIAL MASTERS' COLLEGE

556 Osong, Changwon, Kyungnam Tel: 82-5141

- | | |
|-----------------|--|
| November, 1977 | The Chang Won Industrial Masters' College was activated and registered as a corporate body. |
| November, 1979 | The mutual agreement was made between Korea and Germany to assist the College. |
| March, 1982 | 1982 Class enrolled. |
| February, 1982 | 1980 Class graduated. |
| March, 1982 | The college was placed under the Korea Vocational Training and Management Agency as a subordinate organization. |
| February, 1983 | 1981 Class graduated (247 students) |
| February, 1984 | 1982 Class graduated (304 students) |
| July, 1977 | The Chang Won Industrial Masters' College Act was promulgated. (Law No. 3009) |
| September, 1977 | The Enforcement Decree for the Chang Won Industrial Masters' College Act was promulgated. (Presidential Decree No. 8684) |

BRIEF HISTORY





OUTLINE OF COLLEGE

1. Education: 2-year education courses for strategic heavy and chemical industries consisting of machine, metal, electricity, electronics and chemicals.
2. Operation: The college is operated with the fund contributed by the Government and is supported by the Government of Federal Republic of Germany.
3. Department and Number of Students: Machine manufacturing process (20), Auto maintenance (40), Metal Processing (40), Electronic Equip. & Appliance (40), Electrical Apparatus (60), Sheet Metal & Welding (40).

ENTRY REQUIREMENT

Class I Craftsman certificate with more than three years of practical experience in the respective industrial field. Class I Craftsman qualification holders are only eligible until December 31, 1985.

PRIVILEGES

1. Government scholarships to all students
2. Free entrance fee and tuition
3. Payment of educational expenses
4. Dormitory accommodation (except night class attendants)
5. Eligibility for master craftsman qualification test, is given.

ACTIVITIES AFTER GRADUATION

1. Obtaining qualification for master craftsman.
2. Playing intermediate roles between workers and managers in actual job sites.
3. Preparing work plans, job assignment and work instructions.
4. Work site instruction and supervision.
5. Quality control and improvement of production control affairs.
6. Observance and guidance of safety regulations.
7. Social Treatment equal to doctors and professional engineers.

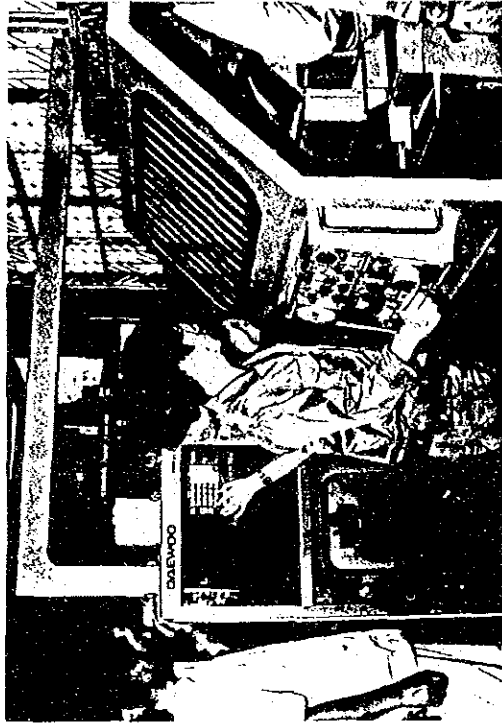


CENTRAL VOCATIONAL TRAINING INSTITUTE

47 Gusancong san, Sukku, Incheon, Tel: 612-7022

BRIEF HISTORY

- January, 1967 The Vocational Training Act was promulgated. (Law No. 1880)
- June, 1968 Organization of the Central Vocational Training Institute was promulgated.
- March, 1970 Regular courses (junior college level) for vocational training instructor were established. (5 trades)
- March, 1974 Additional courses for 7 more trades were established (12 trades)
- April, 1977 The institute was renamed as National Central Vocational Training Institute and the Instructors Department was established.
- January, 1978 Regular courses (junior college level) were reorganized from 12 to 9 trades.
- January, 1980 An advanced course for vocational training instructor was newly established. (3 trades with 2-year courses)
- June, 1982 The institute was reorganized and placed under the Korea Vocational Training and Management Agency as subordinate organization.
- February 1983 Enrollment of trainees as highly skilled manpower training programme was made.



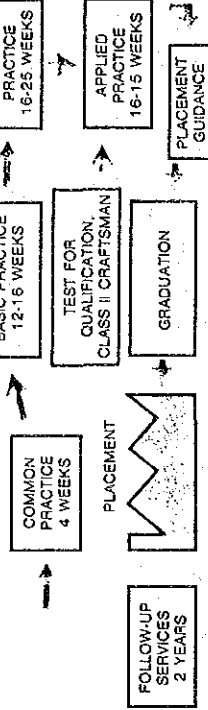
VOCATIONAL TRAINING INSTITUTE

TRAINING OBJECTIVES

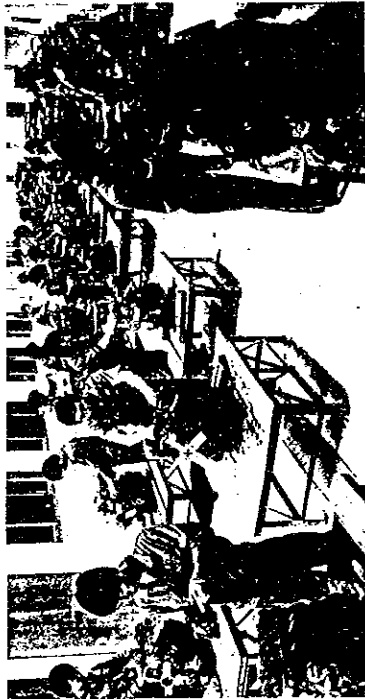
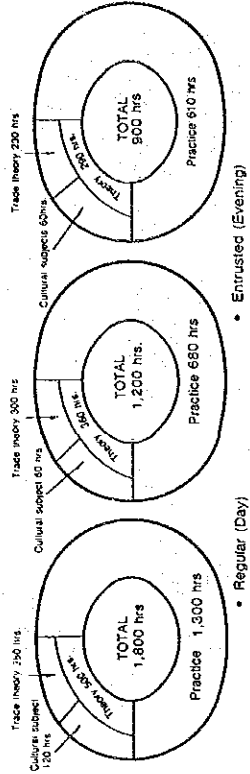
1. Cultivating craftsmen with healthy social philosophy
2. Cultivating trustful and good craftsmen
3. Cultivating elite craftsmen required by industrial society
4. Cultivating craftsmen with firm professionalism



TRAINING COURSES



CURRICULUM



OUTLINE OF TRAINING COURSES

Classification	Highly Skilled Manpower Training Courses	Vocational Training Instructor Licence Courses	Vocational Training Instructor Retraining Courses
Entry Requirement	High School Graduate (Technical High School graduates are excluded.)	<ul style="list-style-type: none"> College graduate with 1 year experience Class 1 Craftsman with 3 years experience 	<ul style="list-style-type: none"> Incumbent Instructor
Training Period	2 Years	12 Weeks	More than 1 Week
Training Hours	<ul style="list-style-type: none"> Basic cultural subjects: 320 hrs (8.9%) Theories: 1,300 hrs (36.1%) Skill practices: 2,170 hrs (60.3%) Total: 3,800 hrs (100%) 	<ul style="list-style-type: none"> General teaching subjects: 360 hrs (75%) Teaching practice: 120 hrs (25%) 	<ul style="list-style-type: none"> Differs depending on courses of training
Privileges	<ul style="list-style-type: none"> Eligibility for Class 1 Craftsman and class 2 engineer qualification 	<ul style="list-style-type: none"> Vocational training instructor's licence 	

TRAINING GUIDELINE

1. Practice oriented training through continuous revision of curricula
2. Improve training by upgrading quality of instructor
3. Make institute a center for total education by improving educational environment
4. Establish an efficient training support system

PRIVILEGES

1. Training expenses are borne by the government
2. Free casual-wears are issued
3. Free dormitory accommodation
4. Exemption of military service during the training period
5. Eligibility for class 1 craftsman and class 2 engineer testing is given



TRADE IN VOCATIONAL INSTITUTES

INSTITUTE	TRADES	ADDRESS
HANOK	Machine manufacturing Process, General Filing, Welding & Plumbing, Die making, Electricity, Electronics.	153-3, Onchon-Dong, Dongnae-Ku, Busan (Tel: 82-0805)
CHUNCHON	Machine Manufacturing Process, General Filing, Foundry, Molding, Wood Pattern, Coating, Sheet Metal Welding, Electricity, Electronics.	290-1, Hipyong-Dong, Chunchon, Kangwon (Tel: 2-7781)
TAEGU	Machine Manufacturing Process, General Filing, Foundry Molding, Wood Pattern, Sheet Metal Welding, Electricity, Electronics, Textile, Dyeing.	1-495, Pyongni-Dong, Bukku, Taegu (Tel: 52-0101)
INCHON	Machine Manufacturing Process, General Filing, Foundry, Welding, Electricity, Electronics.	21-54, Joan-Dong, Nam-Ku, Incheon (Tel: 82-5081)
KWANGJU	Printing Architecture, & Carpentry	59-1, Uhaem-Dong, Kwangju, Chonnam (Tel: 55-0441)
CHUNG-SOO	Machine Manufacturing Process, General Filing, Welding, Architecture & Plumbing, Milling, Heavy Equipment Repair, Electricity, Electronics, Furniture Making	238, Bokwang-Dong, Yongsan-Ku, Seoul (Tel: 792-2467)
SUNGNAM	Machine Manufacturing Process, General Filing, Milling, Grinding	4969, Tandae-Dong, Sungham, Kyunggi (Tel: 2-4441)
DAEJUN	Machine Manufacturing Process, General Filing, Welding, Architecture & Plumbing, Electricity, Electronics	99-1, Kayang-Dong, Taejeon, Chungnam (Tel: 72-1862)
JEONJU	Machine Manufacturing Process, General Filing, Welding, Electricity	742, Palbok-Dong, 2-ka, Jeonju, Chumbuk (Tel: 4-5011)
JINJU	Machine Manufacturing Process, General Filing, Milling, Electricity	105, Hadae-Dong, Jinju, Kyungnam (Tel: 52-9901)
SOONCHON	Machine Manufacturing Process, General Filing, Welding, Pipe-Fitting	435-2, Cheon-Dong, Soonchon, Chonnam (Tel: 2-8161)
KUMI	Machine Manufacturing Process, General Filing, Pipe-fitting, Electricity, Electronics, Textile	112, Kongdan-Dong, Kumi, Kyungbuk (Tel: 2-5191)
POHANG	Machine Manufacturing Process, General Filing, Welding, Pipe-fitting	75, Kwedong-Dong, Pohang, Kyungbuk (Tel: 72-0702)
ULSAN	Machine Manufacturing Process, General Filing, Welding, Milling	81, Dong-dong, Ulsan, Kyungnam (Tel: 3-4581)
CHANGWON	Machine Manufacturing Process, General Filing, Precision Design, Sheet Metal & Welding, Milling & Grinding, Die Making	105-1, Jungang-dong, Changwon, Kyungnam (Tel: 82-4581)
BUSAN	Machine Manufacturing Process, General Filing, Welding, Milling, Electricity	14, Dukchon-Dong, Bukku, Busan (Tel: 92-2131)
WONJU	Machine Manufacturing Process, General Filing, Welding, Pipe-fitting & Plumbing, Electricity	161, Wusan-Dong, Wonju, Kangwon (Tel: 42-8992)
HONGSUNG	Machine Manufacturing Process, General Filing, Welding, Pipe-fitting, Electricity	75, Namjangn, Hongsung, Chungnam (Tel: 2-5141)
ERIE	Machine Manufacturing Process, General Filing, Welding, Pipe-fitting, Electricity, Jewellery works	10, Auyang-Dong, Eri, Chumbuk (Tel: 2-1107)
MOKPO	Machine Manufacturing Process, General Filing, Pipe-Filing, Architecture	1172-1, Sukyon-Dong, Mokpo, Chonnam (Tel: 5-1639)
KIMCHON	Machine Manufacturing Process, General Filing, Welding, Pipe-fitting & Plumbing, Architectural Carpentry	241, Samrak-Dong, Kimchon, Kyungbuk (Tel: 2-8174)
YOUNGJU	Machine Manufacturing Process, General Filing, Welding, Pipe-fitting & Plumbing, Electricity	213, Kabung-Dong, Youngju, Kyungbuk (Tel: 2-5951)
CHOONGJU	Machine Manufacturing Process, General Filing, Welding, Pipe-fitting, Electricity	240, Moksaeng-Dong, Choongju, Chungbuk (Tel: 2-6521)
CHUNGJU	Machine Manufacturing Process, General Filing, Welding, Electricity	28, Saengjung-Dong, Chungju, Chungbuk (Tel: 42-115)



SELECTION OF TRAINEES

Training Course	Qualification	Selection Method	Subjects Tested	Documents Forwarded	Remarks
Regular Training (Initial)	1. Age: 19 or less (Those who have completed or exempted from military service, and must have a qualification certificate or a graduate of a middle school or a graduate of one school (Technical high school graduate included). 2. No physical defect	• Selection by screening by examination • Written tests • Oral tests and physical check-up (Aptitude test)	• Middle school curriculum • Language • Mathematics	1. Application 2. Certificate of graduation 3. Graduate 4. Medical certificate	• Priority is given to military reserve • 5% of total • low income family • 30% (or intake) • 11.5% is selected considering dropout • Training period: 1 year (Trainee-High-School, 2 years)
Upsizing Training (Evening)	1. Age: less than 45, one who has completed or exempted from military service, and must have a qualification certificate or Class I or II 2. Those who can attend evening classes 3. Those who are less than 45 and a man who has completed or is exempted from military service and must have: — Qualification certificate or Assesant Craftman or Worker of factory with skill certificate 2. Those who can attend evening classes	• Selection by screening by documents, Oral tests	None	1. Application 2. Qualification certificate 3. Certificate of career or employment	• 120% is selected considering dropout • Screening period: Class I: 2 months • Class II: 3 months

PRIVILEGES

1. Training expenses are borne by the Government.
2. Free dormitory accommodation, as needed.
3. Free issue of uniform for practical works.
4. Free meals and payment of training allowance for children of the socially protected.
5. Loans for food costs to individuals as needed.
6. Scholarships for outstanding students.
7. Job placement after graduation and follow-up services are offered.

Appendix

LIST OF QUALIFICATION TITLES BY TECHNICAL FIELDS

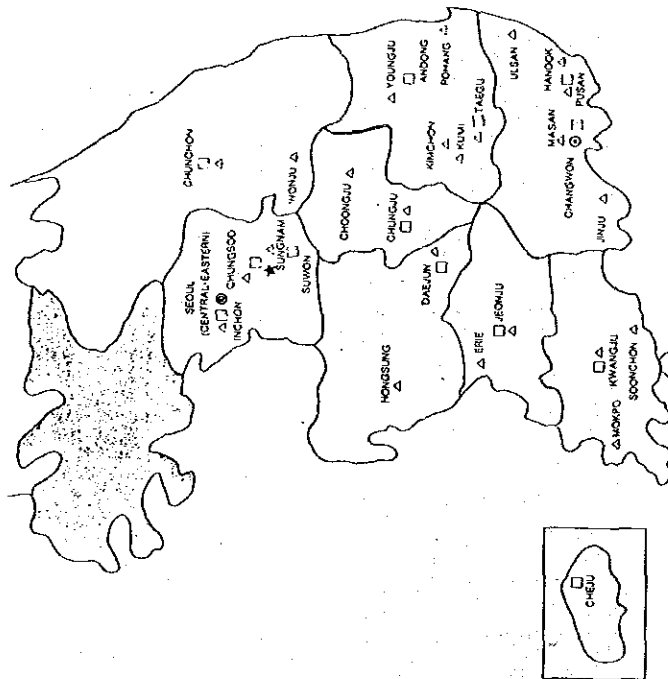
1. Technical Qualification Titles for Engineers

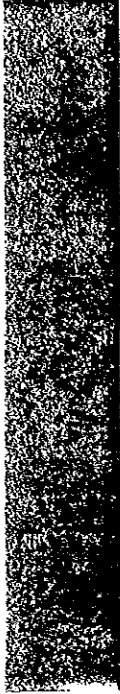
Technical Fields	Professional Engineer		Technical Qualification Titles	
	Class I Engineer	Class II Engineer	Class I Engineer	Class II Engineer
1. Machinery	Machine Manufacturing Process and Machinery Tools Precision Machinery Hydraulic Machinery Prime Mover Industrial Machinery Air-Conditioning and Refrigerating Equipment Construction Equipment Transportation Vehicles	Machine Manufacturing Process Design Welding	General Machinery Air-Conditioning and Refrigerating Equipment Construction Equipment Transportation Railway Vehicles Motor Vehicle Maintenance Heavy Equipment Maintenance Process Design Jig and Fixture Design Weights and Measures Welding Farm Machinery Metal	General Machinery Air-Conditioning and Refrigerating Equipment Construction Equipment Transportation Railway Vehicles Motor Vehicle Maintenance Heavy Equipment Maintenance Jig and Fixture Design Weights and Measures Welding Farm Machinery Metal
2. Metal				
3. Chemical Engineering	Chemical Exchanger Inorganic Chemicals Organic Chemical Products Fuel and Lubricant Fibers Rayon Chemical Chemical Products Electro-Chemistry Chemical Apparatus and Equipment Chemical Plant Design		Chemical Engineering Industrial Chemistry Explosives Manufacturing	Chemical Engineering Industrial Chemistry Explosives Manufacturing
4. Electricity	Generation, Transmission and Distribution Electric Apparatus Electric Application Electric Materials		Electricity	Electricity
5. Electronics	Industrial Instrumentation and Control Electronic Materials Electronic Sound System Electronic Computer		Instrumentation and Control Electronics	Instrumentation and Control Electronics
6. Communica- tion	Electronic Communication		Electronic Computer Radio Officer Radio Line Communication Shipbuilding Marine Machinery	Electronic Computer Radio Officer Radio Line Communication Shipbuilding Marine Machinery
7. Shipbuilding	Shipbuilding Design Hull Marine Engines		Shipbuilding Marine Machinery	Shipbuilding Marine Machinery
8. Aviation	Airplane Aircraft Airplane Apparatus		Aviation	Aviation
9. Civil Engineering	Soil Mechanics and Foundation Structure Harbor and Coastal Engineering Highway and Airports		Civil Engineering Civil Engineering Material Testing	Civil Engineering Civil Engineering Material Testing

LOCATION OF SUBORDINATE ORGANIZATIONS

KEY:

- ★ VOTRI
- ⊙ CHANGWON INDUSTRIAL MASTERS COLLEGE
- ⊙ CENTRAL VOCATIONAL TRAINING INSTITUTE
- LOCAL OFFICE
- △ VTI





2. Technical Qualification Titles for Craftsman

Technical Field	Technical Qualification Titles			
	Master Crafts	Class I Craftsman	Class II Craftsman	Assistant Craftsman
1. Machinery	General Machining	General Machining	General Machining	General Machining
	Tool and Die Making	Tool and Die Making	Tool and Die Making	Tool Making Press Die Precision Measuring
	Machinery Maintenance	Machinery Maintenance	Machinery Maintenance	Finishing
	Sheet-Metal Work	Sheet-Metal Work	Sheet-Metal Work	Sheet-Metal Impact Extrusion Sheet Metal
	Piping	Piping	Piping	Industrial Pipe Fitting Pumping
	Welding	Welding	Welding	Electric Welding Gas Welding Inert Gas Arc Welding Boiler Making Steel Structure
	Boiler Making	Boiler Making	Boiler Making	Motor Vehicle Mechanics
	Motor Vehicle Mechanics	Motor Vehicle Mechanics	Motor Vehicle Mechanics	Motor Vehicle Chassis Motor Vehicle Electricity
	Heavy Equipment Maintenance	Heavy Equipment Maintenance	Heavy Equipment Maintenance	Heavy Equipment Body Maintenance Heavy Equipment Engine Maintenance
	Motor Vehicle Inspection	Motor Vehicle Inspection	Motor Vehicle Inspection	Crane Operator Excavating Machine Operator Bulldozer Operator Asphalt Mixing Plant Operator Diesel Operator Culvert Operator Cable Plant Operator Road-Boiler Operator Water Grader Operator Asphalt Finisher Operator Concrete Mixer Operator Pavement Trench Operator Air-Compressor Operator Agricultural Machinery Maintenance Farm Machinery Operator Farm Machinery Operator

	Railway Water Resources Energy Civil Engineering Water Supply and Sewerage Irrigation, Drainage and Sanitation Engineering Civil Engineering Education		Architecture Architecture Architecture
10. Architecture	Architectural Structure Building Mechanical Facilities Building Electrical Facilities Architectural Execution		Textile Textile
11. Textile	Spinning (artificial fiber) Weaving Dyeing and Finishing Raw Silk Clothing		Raw Silk Clothing Clothing Chemicals Management
12. Mining	Mining Prospecting Ore-Grading		Mining Chemicals Management Information Processing
13. Information Processing	Information Processing Mathematical Application Computer Application		Computer Application Computer Application Atomic Energy
14. Energy	Atomic Energy Nuclear Reactor Nuclear Fuel Radiation Management		Atomic Energy Heat, Consumption Management Regional and Urban Planning Landscape Architecture Land Survey Cadastral Survey
15. National Land Development	Regional and Urban Planning Landscape Architecture Land Survey Cadastral Survey		Ocean Aquatic-cultivation Fishery Industrial Safety
16. Ocean	Ocean Aquatic-cultivation Fishery		Industrial Safety Construction Safety Industrial Hygiene Management Fire Fighting Facilities Auto Inspection Gas
17. Safety Management	Machine Safety Chemical Safety Electric Safety Construction Safety Industrial Hygiene Management Fire Fighting Facilities		Processing Control Quality Control Packing Ceramics Food Processing Fibres Processing Applied Geology Metallurgy Horticultural Seedling Forest Seedling Forest Product Processing Forestry Management Plant Protection Agricultural Chemistry Nondestructive Testing Industrial and Commercial Products Design Environmental
18. Production Control	Plant Control Quality Control Packing		Processing Control Quality Control Packing Ceramics Food Processing Fibres Processing Applied Geology Metallurgy Horticultural Seedling Forest Seedling Forest Product Processing Forestry Management Plant Protection Agricultural Chemistry Nondestructive Testing Industrial and Commercial Products Design Environmental
19. Applied Industries	Ceramics Food Processing Fibres Processing Applied Geology Seedling Forest Product Processing Forestry Management Agricultural Chemistry Nondestructive Testing		Environmental Air Pollution Control Water Pollution Control Noise and Vibration
20. Environmental Control	Air Pollution Control Water Pollution Control Noise and Vibration		Environmental

			Paper Manufacturing Leather Processing Agricultural Chemicals Dangerous Material Handling	Pulp and Paper Making Leather Processing Agricultural Chemicals Dangerous Material Handling Explosives Manufacturing	Paper Manufacturing Leather Processing Agricultural Chemicals Dangerous Material Handling	Paper Manufacturing Leather Processing Agricultural Chemicals Dangerous Material Handling
4. Electricity			Electric Apparatus Electric Work Electric Power Distribution and Transmission Facilities Railway Signal	Electric Apparatus Electric Work Electric Power Generating Facilities Transformer Expansion and Distribution Equipment Railway Signal	Electric Apparatus Electric Work Electric Power Distribution and Transmission Facilities Railway Signal	Electric Apparatus Electric Work Electric Power Generating Facilities Transformer Expansion and Distribution Equipment Railway Signal
5. Electronics			Electronic Apparatus	Electronic Apparatus Video Computer Maintenance Industrial Instrumentation Control	Electronic Apparatus Computer Maintenance Industrial Instrumentation Control	Electronic Apparatus Electronic Sound and Video Computer Maintenance
6. Commun- ication			Wire Communication Equipment	Telephone and Telegraph Equipment Carrier Multiplexing Equipment	Telephone and Telegraph Equipment Carrier Multiplexing Equipment	Telephone and Telegraph Equipment Carrier Multiplexing Equipment
7. Shipbuil- ing			Ship Drawing Ship Hull Outfitting Marine Engine Outfitting	Ship Drawing Ship Assembly Shoebuilding Bending Processing Hull Outfitting Marine Engine Outfitting	Ship Drawing Ship Assembly Shoebuilding Bending Processing Hull Outfitting Marine Engine Outfitting	Shoebuilding Bending Processing Hull Outfitting Marine Engine Outfitting
8. Civil Engineering			Civil Engineering Drawing Surveying Civil Engineering Material Testing Concrete Paving Work Track Maintenance Stone Work Tunnel Work	Civil Engineering Drawing Surveying Civil Engineering Material Testing Concrete Paving Work Track Maintenance Stone Work Tunnel Work	Civil Engineering Drawing Surveying Civil Engineering Material Testing Concrete Paving Work Track Maintenance Stone Work Tunnel Work	Concrete Paving Work Water Proof Work Track Maintenance Stone Work Tunnel Work
9. Architec- ture			Architectural Drawing Building Work	Architectural Drawing Building Work	Architectural Drawing Building Work	Architectural Material Testing Brick Laying Plastering Oncol Roof Tile Work Tile Laying

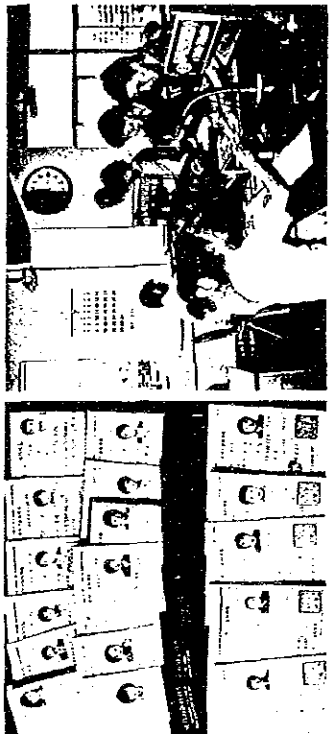
			High Pressure Gas Machinery High Pressure Gas Freezer High Pressure Gas Handling Air Conditioning Aircraft Body Maintenance, Maintenance Aircraft Equipment Maintenance Aircraft Electronic Apparatus Maintenance Locomotive Power Train Engine Maintenance Locomotive Power Train Electricity Train Maintenance Train Switching Prime Mover Operation Prime Mover Installation Weights and Measures Tobacco Preparer Cigarette Making Cigarette Packing Tobacco Rolling Tobacco Preparing Machine Maintenance Maintenance Tobacco Packing Machine Maintenance Tobacco Rebinding Machine Maintenance Camera Repair Watch Repair	High Pressure Gas Machinery High Pressure Gas Freezer High Pressure Gas Handling Air Conditioning Aircraft Body Maintenance, Maintenance Aircraft Equipment Maintenance Aircraft Electronic Apparatus Maintenance Locomotive Power Train Engine Maintenance Locomotive Power Train Electricity Train Maintenance Train Switching Prime Mover Operation Prime Mover Installation Weights and Measures Tobacco Preparer Cigarette Making Cigarette Packing Tobacco Rolling Tobacco Preparing Machine Maintenance Maintenance Tobacco Packing Machine Maintenance Tobacco Rebinding Machine Maintenance Camera Repair Watch Repair	High Pressure Gas Machinery High Pressure Gas Freezer High Pressure Gas Handling Air Conditioning Aircraft Body Maintenance, Maintenance Aircraft Equipment Maintenance Aircraft Electronic Apparatus Maintenance Locomotive Power Train Engine Maintenance Locomotive Power Train Electricity Train Maintenance Train Switching Prime Mover Operation Prime Mover Installation Weights and Measures Tobacco Preparer Cigarette Making Cigarette Packing Tobacco Rolling Tobacco Preparing Machine Maintenance Maintenance Tobacco Packing Machine Maintenance Tobacco Rebinding Machine Maintenance Camera Repair Watch Repair	High Pressure Gas Machinery High Pressure Gas Freezer High Pressure Gas Handling Air Conditioning Aircraft Body Maintenance, Maintenance Aircraft Equipment Maintenance Aircraft Electronic Apparatus Maintenance Locomotive Power Train Engine Maintenance Locomotive Power Train Electricity Train Maintenance Train Switching Prime Mover Operation Prime Mover Installation Weights and Measures Tobacco Preparer Cigarette Making Cigarette Packing Tobacco Rolling Tobacco Preparing Machine Maintenance Maintenance Tobacco Packing Machine Maintenance Tobacco Rebinding Machine Maintenance Camera Repair Watch Repair
2. Metal			Mechanical Drawing Heat Treatment Casting Metal Plating and Coating Metal Material Testing Wood Pattern Rolling Iron Making Steel Making Coke Making	Mechanical Drawing Heat Treatment Casting Metal Plating and Coating Metal Material Testing Wood Pattern Rolling Iron Making Steel Making Coke Making	Mechanical Drawing Heat Treatment Casting Metal Plating and Coating Metal Material Testing Wood Pattern Rolling Iron Making Steel Making Coke Making	Mechanical Drawing Heat Treatment Casting Metal Plating and Coating Metal Material Testing Wood Pattern Rolling Iron Making Steel Making Coke Making
3. Chemical Engineering			Chemical Analysis Chemical Industrial Machinery Rubber Products Manufacturing Plastic Products	Chemical Analysis Chemical Industrial Machinery Rubber Products Manufacturing Plastic Products	Chemical Analysis Chemical Industrial Machinery Rubber Products Manufacturing Plastic Products	Chemical Analysis Chemical Industrial Machinery Rubber Products Manufacturing Plastic Products

Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft	Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft	Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft	Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft
Precious Metal Processing Printing Plate Making Forest Product Processing Seedling	Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft Satin Bamboo Handicraft Sisal Handicraft Stone Handicraft	Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft Satin Bamboo Handicraft Sisal Handicraft Stone Handicraft	Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft Satin Bamboo Handicraft Sisal Handicraft Stone Handicraft
Ceramics Information Processing	Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft Satin Bamboo Handicraft Sisal Handicraft Stone Handicraft	Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft Satin Bamboo Handicraft Sisal Handicraft Stone Handicraft	Lacquers wares Metal Handicraft Wood Handicraft Pottery Handicraft Satin Bamboo Handicraft Sisal Handicraft Stone Handicraft

3. Titles and Classes for Service Fields

Service Fields	Chief	Class I	Class II	Assistant
Cooking	Chief Cook	Class I Cook	Class II Cook	Assistant
Confectionery and Pastry	Chief Confectionery Maker	Confectionery Maker	Confectionery Pastry Maker	Confectionery Pastry Maker
Bartender	Barber	Barber	Barber	Barber
Barber	Beautician	Beautician	Beautician	Beautician
Beautician	Piano Tuning	Piano Tuner	Piano Tuner	Piano Tuner
Piano Tuning	Garbage Working	Garbage Worker	Garbage Worker	Garbage Worker

Carpentry	Glazier Scaffolding Molding Architectural Painting Furniture Painting Wall Papering Architectural Carpentering Furniture Making Joiner Reinforcing Steel Bar Steel Frame	Glazier Scaffolding Molding Architectural Painting Furniture Painting Wall Papering Architectural Carpentering Furniture Making Joiner Reinforcing Steel Bar Steel Frame	Glazier Scaffolding Molding Architectural Painting Furniture Painting Wall Papering Architectural Carpentering Furniture Making Joiner Reinforcing Steel Bar Steel Frame
10. Textile	Spinning Spinning Raw Silk Weaving Textile Fabric Finishing Dyeing Knitting Embroidery Clothes Making Dressmaking	Spinning Spinning Raw Silk Weaving Textile Fabric Finishing Dyeing Knitting Embroidery Tailoring Dressmaking	Spinning Spinning Raw Silk Weaving Textile Fabric Finishing Dyeing Knitting Embroidery Tailoring Dressmaking
11. Mining	Mining Ore-Dressing	Mining Mine Boring Ore-Dressing	Mining Mine Boring Ore-Dressing
12. Ocean	Aquatic Cultivation Fisheries Diver	Aquatic Cultivation Fisheries Diver	Aquatic Cultivation Fisheries Diver
13. Agriculture Industries	Agricultural Chemistry Food Processing Moss Coating Cadmite Mapping Drawing Technical Illustration Aerial Photograph	Agricultural Chemistry Food Processing Moss Coating Cadmite Mapping Drawing Technical Illustration Aerial Photograph	Agricultural Chemistry Food Processing Moss Coating Cadmite Mapping Drawing Technical Illustration Aerial Photograph

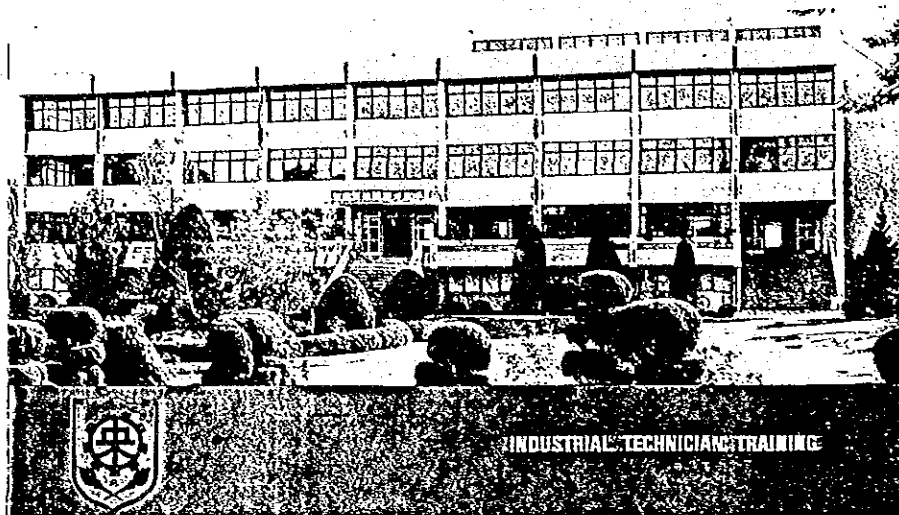


14 LOCAL OFFICES (KOREA VOCATIONAL TRAINING & MANAGEMENT AGENCY)

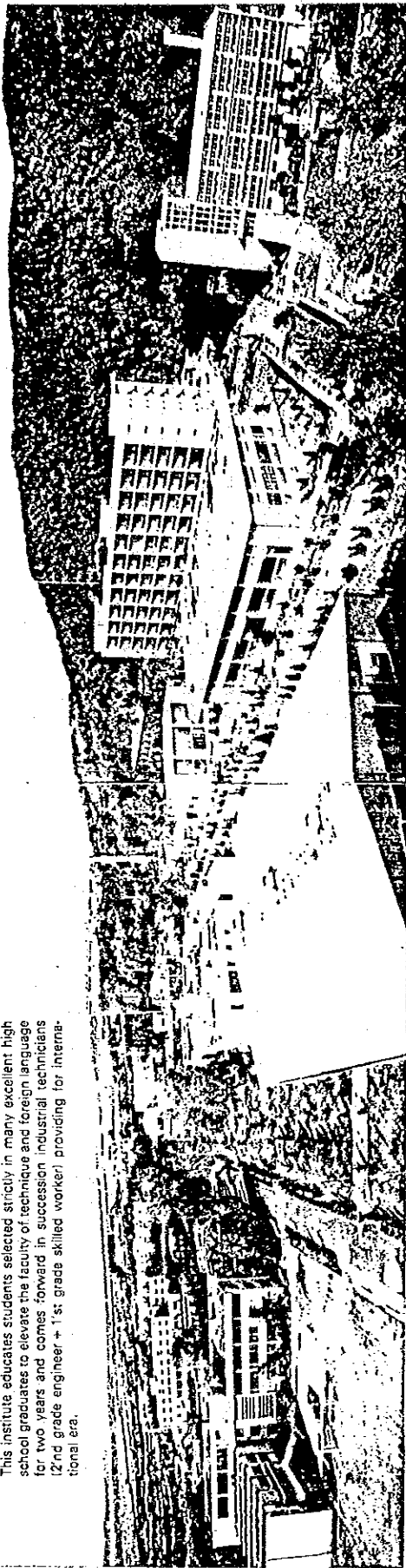
OFFICE	ADDRESS	TELEPHONE
Seoul Central	370-4, Kongduk-dong, Mapo-ku, Seoul	715-3212, 3213
Seoul Eastern	36-7, Yeongduli-dong, Dongdaemun-Ku, Seoul	961-5134~9
Busan	1764-1, Taeyeunee-dong, Nam-ku, Busan	66-3634, 6934
Taegu	2039-28, Taemyoungpaal-dong, Nam-ku, Taegu	65-3002~3
Inchon	967-3, Jooan-dong, Nam-ku, Inchon	424-2843, 2145
Kyunggi	80-17, Jungja-dong, Suwon, Kyunggi	7-4156~7
Kangwon	711-4, Keunwha-dong, Chuncheon, Kangwon	2-6690, 6992
Chungbuk	188-4, Naeduk-dong, Chungju, Chungbuk	3-4920, 2-0452
Chungnam	501-1, Daehung-dong, Choong-ku, Taejeon, Chungnam	253-5551~2
Chunbuk	365-4, Jinbuk-dong, Cheonju, Chunbuk	4-6010, 0477
Chonnam	120-1, Sinan-dong, Buk-ku, Kwangju, Chonnam	523-3700~2
Kyungbuk	229-5, Taewha-dong, Andong, Kyungbuk	52-3221~2
Kyungnam	313-24, Sanhoil-dong, Masan, Kyungnam	93-0431~3
Cheju	1736-13, Eedoe-dong, Cheju	3-4855, 1770

<資料-11>

CENTRAL VOCATIONAL TRAINING INSTITUTE

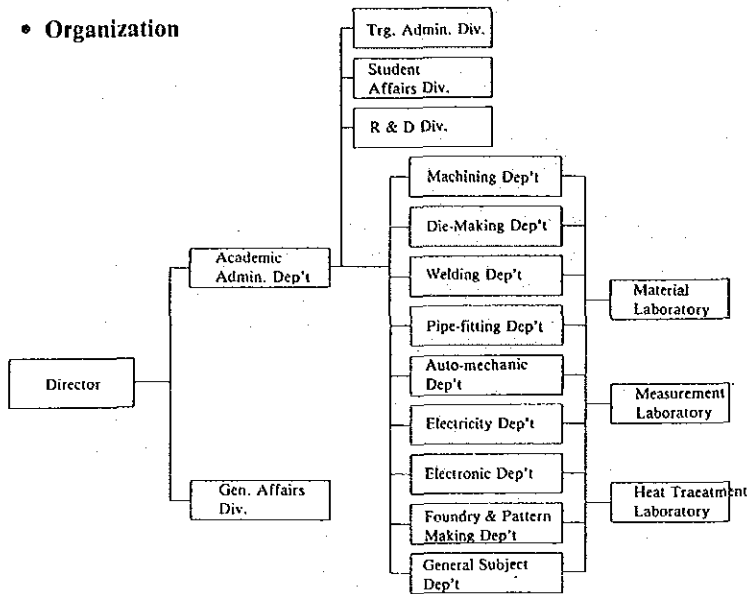


This institute educates students selected strictly in many excellent high school graduates to elevate the faculty of technique and foreign language for two years and comes forward in succession industrial technicians (2nd grade engineer + 1st grade skilled worker) providing for international era.



ORGANIZATION PERSONNEL & FACILITIES

• Organization



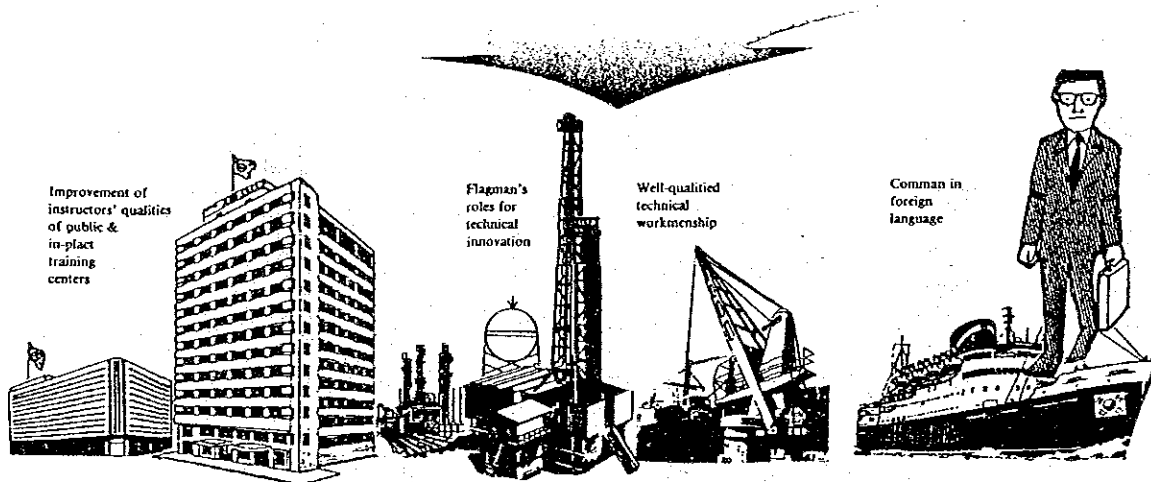
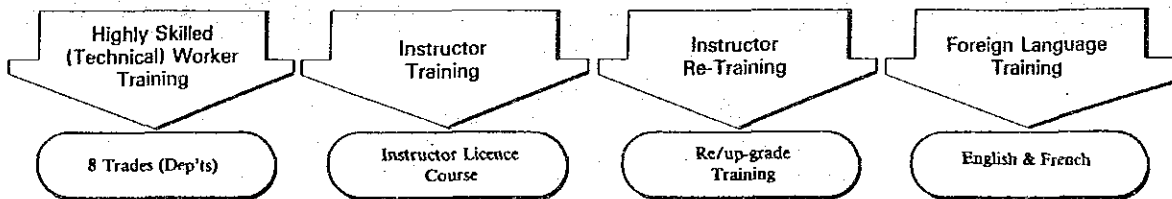
• Facilities

- Lands 208,172 m²
- Bldgs 32,536 m²

• Personnel

- Faculty & Admin. 184 men
- Student Capacity
420 men × 2 yrs.

ROLES & FUNCTIONS



STUDENT RECRUITMENT

INDUSTRIAL TECHNICIAN TRAINING COURSE

Course	Highly Skilled (Technical) Worker Training Course			
Entrance qualification	High School Graduation			
Selection Criteria	Applicants before military service	(below 20 years of age)	According to the marks of University Entrance Preliminary Examination	
	Applicants after military service	(below 26 years of age)	Marks from high school	
Duration	2 yrs. (3,600 hrs.)			
Contents of Education	Technical Subjects		General Subjects	Foreign Language
	Practice 2,160 hrs.	Theory 1,190 hrs.	250 hrs.	Additional 500 hrs. during 2 yrs.
Remarks	<ol style="list-style-type: none"> 1. Women are welcome specially in the trades of electronic & electricity, automechanic & machining. 2. New equipments provided. 3. Theory & practice hamonized. 			

PRIVILEGES



UPON COMPLETION

Beginning from no technical experience, the students are qualified to be employed as key technical member in the internationalized industry upon completion of 2 year course, during which they get foreign language as well as technical training and are qualified for

- 2nd grade engineer
- 1st grade skilled worker .

WHEN THEY ARE EMPLOYED

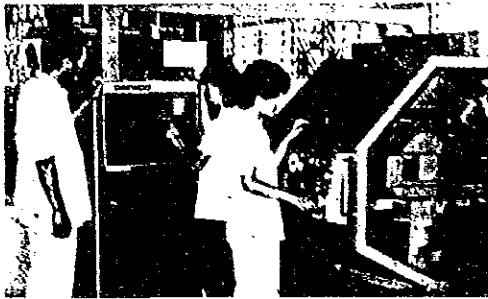
- In the intermediate positions between skilled workers' and technologists they can perform;
 - Managing and control of manufacturing and working process.
 - Testing/inspection and supervisory roles.
 - Overseas activities
- Performing key technical roles in the industry and paid more than 200,000–300,000 Won at the beginning of employment.

INTRODUCTION TO DEPARTMENTS

CVTI is the biggest train provided with modernize

Machining Dept

- Manufacturing of machine elements using lathe-machine, milling machine, grinding machine.
- Principles, operation, maintenance & trouble-shooting of machining equipments, tools, etc.....
- Skills and technology of design, drawing, selection & survey of materials, testing & measuring of work pieces.
- Concentrated on operating modernized equipments such as CNC machines, etc.....



▲ CNC-Lathe

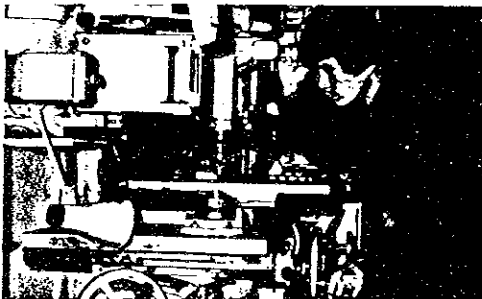
▼ CNC-Machining Center



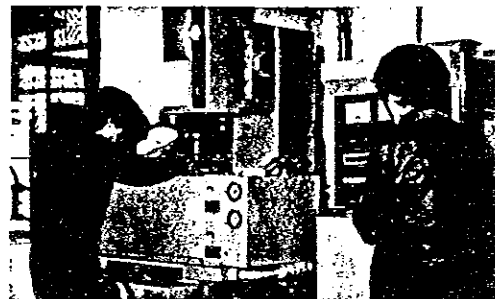
▲ Grinding Machine

ing Institute in Korea
ed equipments.

Die-making Dept



▲ Copy Milling Machine



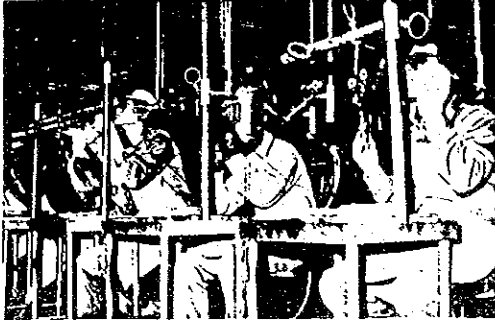
▲ Electric Discharge Machine

- Manufacturing of precision dies using copy milling machine, engraving machine, wire-cutting machine, electric discharge machine, CNC machines, etc.....
- High precision dies using pen-type grinding machine.
- Covering manufacturing of plane and cubic dies for press and/or molding process.

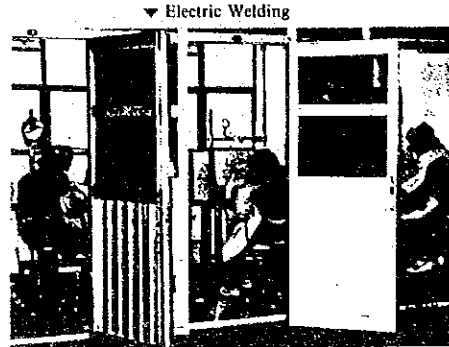


▲ Engraving Machine

Welding Dept.



▲ Gas Welding



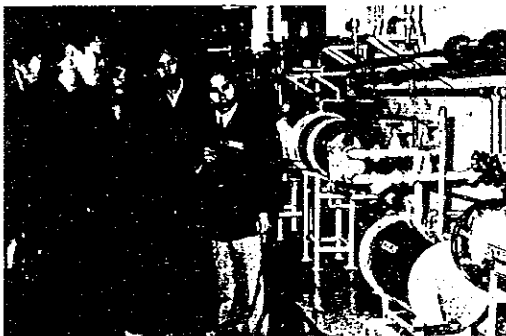
▼ Electric Welding



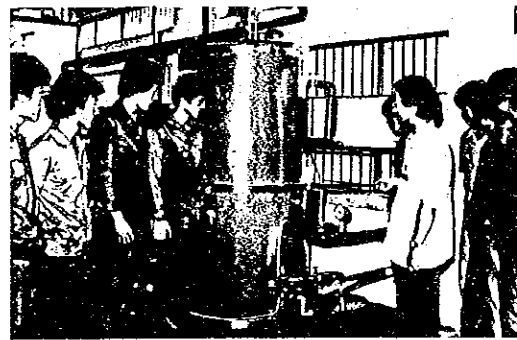
▼ Specialized Welding

- Skills and technology of gas, arc, TIG, MIG, Co, non-gas welding for steel plate, steel pipe, steel constructions.
- Up to specialized welding for non-ferrous metals.
- And Welding for dissimilar materials and different types of work pieces.
- Including skills and technology of laboratory works on destructive and non-destructive testing.

Pipe-fitting Dept.



▲ Pipe Fitting



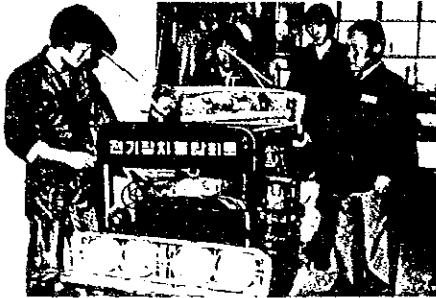
▲ Boiler

- Basic skills and technology of building & plant engineering service (pipe-fitting)
- Principles, installation, operation, repairing, quantity survey for generative power up to attachments such as safety systems, control systems.
- Covering various types of boilers, heating & airconditioning systems, water supply & drainage systems, hygiene systems, fire-protection systems, plant engineering service and chemical plants.



▲ LPG System

Auto mechanic Dept

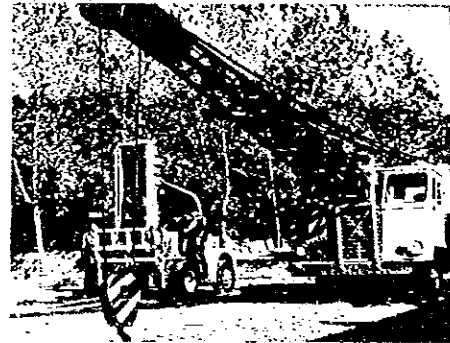


▲ Electric Equipment



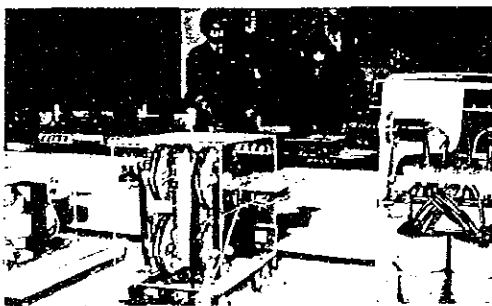
◀ Computerized Trouble-Shooting

- Skills and technology of trouble-shooting maintenance, testing of farm machines, various types of vehicles, heavy equipments, etc.....
- Up to trouble-shooting using computerized testing equipment.



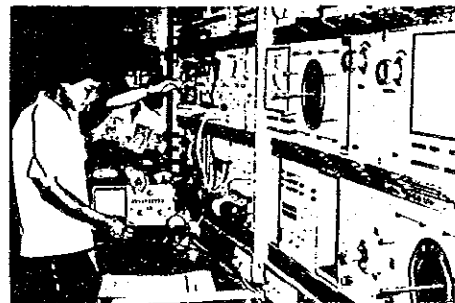
▲ Heavy-Equipment

Electric Dept



▲ Modularized Electrical System

▼ Automatic Control



▼ Power Wiring

- Basic electricity of indoor & outdoor wiring and receiving & distributing of electricity and electric instruments.
- Skills and technology of different types of electric attachments used for machines, electricity systems of building & plants.
- Up to manufacturing, utilization, trouble-shooting & maintenance of electric devices and systems.
- Including power electronic and automatic control system.



Electricity Dept.

▼ Computer Programming



- Skills and technology of operation, maintenance, trouble-shooting of digital system, numerical control system, industrial methodology control systems, electronized equipments, medical instruments and calibration of electronized measurement instruments.
- and Maintenance of color TV, VTR, TV camera.
- Up to programing and maintenance of computers and other innovated electronic technology.

▼ Digital Circuit



▲ Radio & TV Repairing



Foundry & Patternmaking Dept.



▲ Foundry

▼ Pattern Making



▼ Heat Treatment



- Basic skills and technology of pattern-making using wood, plaster, gypsum, wax, plastic and other materials.
- Molding and casting using molding sand.
- Up to innovated foundry technology such as shell-molding, investment, die-casting, powder metallurgy compacting.
- and Other casting technology of iron & non-ferrous metals and heat-treatment.

FOREIGN LANGUAGE EDUCATION

Foreign Language Class

Duration	2 months (300 hrs.)
Contents of Education	<ul style="list-style-type: none"> • Hearing • Composition • Vocabulary • Speaking
Teaching-Staff	All Foreigners
Privileges	<ul style="list-style-type: none"> • Training expence provided by the government • Providing dormitory.



After Completion

Possessing conversation ability of English or French, having self confidence to talk with foreigners.

Students

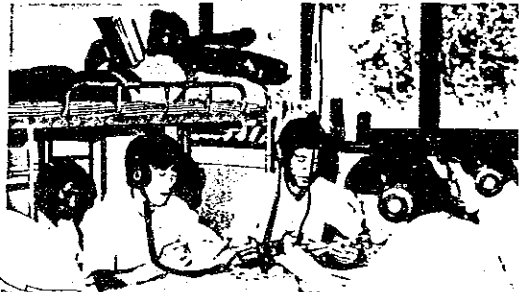
Students

- For elevating the faculty of foreign language of students.
- Perfection individual hearing systems in each room of dormitory.
- Hearing 2 hrs. each day.
- Training technician combined the faculty of technique and foreign language.

▼ Dormitory



▼ Living Room



▼ Restaurant



第 次 第

韓国第6次国家開発計画の概要

1. 計画の前提	1
(1) 第6次計画の意義と役割	1
(2) 第5次計画運用の中間評価	3
(3) 対内外環境の展望	8
2. 計画の基本目標と重点推進課題	15
(1) 第6次計画の基本目標	15
(2) 計画の基本戦略と重点推進課題	16
3. 総論展望(暫定)	23
(1) 適正成長水準の選択	23
(2) 国際収支均衡基調の定着と純外債の縮小	24
(3) 物価安定の持続	25
(4) 雇用機会の拡大	26
<暫定総論指標>	28

1. 計画の前提

(1) 第6次計画の意義と役割

<第6次計画の発展史的意義>

— 戦国は去る1962年第1次経済開発5ヵ年計画を殆手して以来、5回にわたる経済開発計画を推進し、国民経済の量的拡大と質的高度化を期し、国民生活の各部門で急激な発展をとげた。20年という比較的短い間に後進国から完全に脱皮して、世界の注目をおびる新興工業国に成長し、国際的にも経済開発計画推進の成功例として評価されている。

— しかし戦国経済は、これまでの急速な成長発展の過程で派生した産業間及び地域間発展の格差を縮小し、経済力集中と不況企業問題など企業経営の構造的な非能率要因を是正すべき課題をかかえており、所得の分配を改善して労働者と低所得階層の生活向上を図り、厚い中産層を形成することが課題になっている。特に、80年代に入り高まってきた先進国の保護貿易政策を打開し、後進国上層の追撃をふり切りながら対外指向的な成長戦略を推進するためには、競争と開放を基本に産業能力を向上させ、技術開発と人力開発体制を再整備強化しなければならぬ。

このよりの課題をどれほど成功裏に打開していくかが、先進社会に如何に早く進入できるかの鍵になっている。

第6次5ヵ年計画期間の80年代後半と90年代初めは、戦国が先進国社会に進入するための体制を成功裏に整備すべき歴史的な転換期でもある。

戦国が先進国社会に進入してできる原動力は、結局あらゆる国民階層から生れる。企業家は創意を基礎にして善悪の競争を通じ産業の国際競争力を高め、勤労者は生産性向上の主役を担いながら発展指向的な労働協約体制を構築することによって協力し、家庭では質素な生活気風を定着させ、貯蓄増大を支えていかねばならぬ。この過程で、政府は国民各階層のウェルフェアが良慶な

この指針案は、各部門別計画委員会が、所管部門の第6次経済社会発展5ヵ年計画を樹立するにおいて考慮すべき計画の性格、対内外環境など計画の前提と、計画の基本目標、重点推進課題及び部門別計画作成指針を提示するためのものである。

各部門別計画はこの指針に従って具体的に発展させ、その過程で関係部処と専門研究機関は勿論、利害関係がある国民各界を覆ま広範囲に、そして実質的に参加させることによって、問題の認識と政策方向を模索し、過去のどの計画よりも国民的合意の形成に力を入れなければならない。

但し、この指針で提示する諸般目標と重点推進課題は暫定的なものであり、もっと幅広い意見の収斂過程から発展、修正することができると

(2) 第5次計画運用の中間評価

1. 第5次計画の政策基調

<70年代の累積した課題>

- 一 第5次計画に着手した80年代初の韓国経済は、第2次石油変動で対内外環境が困難ななかで、高度成長過程で累積された構造的課題が顕在化する状況にある。
即ち、通貨膨張によるインフレの加速化で経済全般の効率が低下し、70年代後半の重化学工業への無理な投資集中によって軽工業と中小企業の相対的不均衡を深めた。
そのため持続的な成長が抑えられ国際収支の赤字が拡大したし、インフレとともに広がった不動産危機は、所得配分を悪化させ、階級生活者と勤労者の貯蓄意欲を喪失させた。

<80年代政策基調の転換>

- 一 第5次計画では、このような構造的課題を解決し、安定的経済成長の基礎を築くため政策基調を根本的に転換した。先ず、物価の安定を経済運用の最優先課題にして一貫性ある施策を推進したし、民間の自主と競争を促進して経済社会の能力を増進させ、一方では、経済能力の範囲内で国民生活の均衡と質的向上を図った。

2. 第5次計画実績の中間評価

<安定基調での成長回復>

- 一 '82~'84年の韓国経済は、困難な対内外環境のなかでも面期的な物価安定を遂げた。この物価安定は財政金融政策の健康な運用と、無理な名目賃金引上の自制、金利引下げ、買上げ価格安定など、所得政策的努力、そして不動

く集結され拡散できるより、経済社会各部門の制度と秩序を公平性と能率性に立脚して確立していかなければならず、特に、国民から信頼を受ける政府になるよう一そり努力して、国民各階層が政府を信じ、全体の利益のために少数の過剰欲求を自制してこそ経済の先進国化が可能になる。

<計画の役割と運用>

- 一 第6次計画は、過去の成長経験を土台に今後展開する対内外環境と制約要因を検討して、韓国の国民的力点が最大限發揮できる適正成長を選択し、これを効果的に推進するため、政府方向と重点課題を具体的に提示する一方、民間に対しては、経済活動の基準と緊要しい行動様式を提示する誘導計画で、未来に対する予測可能性を増大させる役割をする。
一 第6次計画は中期財政計画、国土総合開発計画、教育発展長期計画など、国連総合計画と、執行計画としての各部署業務計画は勿論、地方計画の樹立と推進においても本計画と流れを共にしなければならない。

<計画樹立過程の重要性>

- 一 今度の第6次計画の樹立は、国民的合意形成過程への役割を特に重視する。このため問題の認識と政策方向の構築において、過去のどの計画よりも各界各層の幅広い参加を通じた意見収斂に力点を置く。
即ち、各部署は部門別計画委員会を構成して所管政策を能動的に作成提示するが、各研究機関と学界など関連専門家を政策立案段階から広範囲に参加させて意見を反映し、互に利害関係が異なる国民各界各層を部門別政策協議会に参加させ、自由な討論過程を経て利害を調整し、討議方式にはT Vや紙上公開討論方式も活用するのが望ましい。
特に、農民と地域住民の意見収斂のためには、現地出張とか地域経済協議会を活性化し、選挙公約事業は緊密な党政協議を経て計画内容に密に積極反映する。

産投機の抑制などを通じて行われた。

	'80	'81	'82	'83	'84
卸売物価	4.2.3	1.1.3	2.4	-0.8	1.6
消費者物価	3.2.2	1.3.7	4.8	2.0	2.4

— ことよりの安定基調のうえで7.5%の経済成長が持続して雇用の機会が拡大し国民の実質所得も増大した。

	'80	'81	'82	'83	'84
経済成長率	-5.2	6.2	5.6	9.5	7.6
失業率	5.2	4.5	4.4	4.1	3.8
1人当りGNP	1,605	1,735	1,800	1,884	1,998

— また、計画期間中の物価安定を基礎に、国内貯蓄率が'82年の2.24%から、'84年には2.74%まで高くなり、国際収支も改善されたので外債の増加速率も鈍化した。

	'80	'81	'82	'83	'84
国内貯蓄率(%)	2.1.9	2.1.7	2.2.4	2.4.8	2.7.4
経常収支赤字(億ドル)	53	46	26	16	14
総外債総額(億ドル)	273	325	371	404	431
(年間増加、億ドル)	(6.9)	(5.2)	(4.6)	(3.3)	(2.7)

— しかし慢性的化したインフレ体質を短期間に治療しながら、経済運用方式を転換する過程で俸給生活者と勤労者、農民など国民各界層が幅広く苦しみを分かちかねばならないので、これに対する不満が顕著となり、企業もインフレ時代のよりな金融儲けの機会が減り、安定化施策に適応できなない企業の不満も出てきた。

<経済競争の向上>

— 第5次計画は対内的に競争を制限する要素を除去し市場競争原理に立脚した競争の向上に注力した。公正取引制度を実施して市場秩序を整備し、産業支援方式も従来の特定産業別支援を機能別支援方式に転換した。金融部門でも政策金融の比重を縮小し、金融自由化を推進して資源配分の歪曲を改善すべく努力した。

— 対外開放を通じて先進国の輸入規制に能動的に対処しながら、対外競争力を高める努力を持続した。国内産業の発展程度にあわせて輸入自由化と関税率引下げが行われ、一方では、技術導入の自由化と外国人投資に対する規制方式の果敢な転換によって、先進技術と経営技法の導入を促進し、国内産業の国際競争力向上への努力を強力に誘導した。

	'80	'81	'82	'83	'84
輸入自由化率	68.6	74.7	76.6	80.7	84.8
(独占品占目)	(—)	(43.9)	(44.5)	(52.0)	(62.4)
平均関税率	24.9	24.9	23.7	22.6	20.6

— このよりの対内的競争の促進と市場機能の活性化によつて、企業の技術開発及び生産性向上の努力が強化され、一方では、財務構造も改善されて企業の体質改善に相当な進展があった。

	'80	'81	'82	'83	'84
技術開発投資/GNP	0.85	0.90	1.07	1.25	1.40
自己資本比率	17.0	18.1	20.6	21.7	—

— しかし、第5次計画で重点的に推進している自由と開放を通じた競争原理が完全に定着するまでは、解決すべき課題が多く残されている。即ち、民間部門では政府支援に対する依存心を払拭し、企業経営環境の變化に自から対応する自主と責任経営の意識が確立しなければならず、政府も金融自由化を名実共に推進すべきである。

— 第5次計画はまた、経済能力の範囲内で医療、教育、水道など国民生活の
基本需要を充足させるため努力を強化した。

(例)

	'80	'81	'82	'83	'84
医療補償受恩者	29.6	39.1	43.9	48.3	49.7
大学進学率	27.2	35.3	37.7	38.3	—
水道普及率	5.5	5.7	5.9	6.2	—

— このように均衡に重点を置いた施策の推進にも拘らず、まだ解決すべき課題
が多く残されている。特に、首都圏に集中した経済力を地方に分散させるこ
とが、実質的には地方経済を活性化させる制度的な装置を補強しなければ
ならず、中小企業と大企業の均衡ある発展も不十分な実情である。

— また、国民福祉の面でも、住宅普及率が80年の71.2%から84年には66.6
%に低下し、医療保険も全国民の約50%に限られており、今後地域医療保
険を拡大すべき課題が残されている。

ハ 総合評価と今後の課題

— 80年代前半、経済政策基調の転換は過去の経済運用方式を果敢に脱皮して
安定、能率、均衡の経済理念を実現するところに意義がある。そのうちでも
過去のインフレーションの情性を断絶させ、経済安定基調を定着させて生産主体
の投資内実化を誘導し、消費主体の動向節約気風を振作したことは極めて画
期的な成果といえる。

— しかし、経済の構造的な能率向上と国民各界層間の均衡ある福祉向上は、今後
韓国が先進国社会に進入するため一層努力すべき課題である。

第1に、これまでより早く達成した安定基調を恒久的に定着させ、再燃す
る素地があるインフレーション心理を完全に払拭し、

第2に、成長潜在力を培養していくため、不実企業の整理、金融産業の発
展など、経済社会各部門に潜在している構造的な問題を着実に解決し、

第3に、急速に増大する国民の経済社会的な要求と悪隣を緩和するため、社

— また、輸入自由化など開放政策に対しても、該当企業が政府の継続的な保護
を期待するよりは、国際競争で生き残れるようにする努力が必要である。こ
れと関連して企業の自主技術開発体制や、技術隘路の打開戦略がまた脆弱な
状態である。

<均衡発展と福祉増進>

— 中小企業に対する政策的な支援施策が多角的に推進された。

中小企業分野に対する大企業の優遇を防止し、健全な系列化関係を設定す
る一方、中小企業に対する技術支援と金融支援が大幅に拡大された。この施
策の推進によって、中小企業が全産業で占める比重が次第に高くなっていく。

中小企業の比重

(例)

	'80	'81	'82	'83	'84
附加価値比率	35.1	34.7	36.1	37.5	—
輸出比率	32.1	31.0	32.7	32.4	37.1

— 地域間の均衡発展と農漁村生活環境改善、及び農家所得増大の努力も体系的
に推進された。首都圏に対する整備が促進されるなかで、'88高速道路の開
通と活発な地方道路網整備、地方大学の育成が行われたし、地方金融機関も活
性化した。農業の生産性基盤を拡充するための機械化、耕地整理が続き、一
方では、農業外所得の面期的増大のため新たに農工地区を指定している。

	単位	'80	'81	'82	'83	'84
地方道路網整備	km	—	11.0	12.8	18.1	22.3
地方銀行支店	カ所	228	270	316	332	349
農機具保有	千台	1,069	1,205	1,377	1,524	1,651
耕地整理率	%	62.6	65.0	68.0	71.0	73.0

経済成長展望

(年平均、%)

	'70年代平均	'82 ~ '86	'87 ~ '91
世界	3.7	2.6	3.0
先進国	3.3	2.5	2.7
(米国)	(3.1)	(2.7)	(3.0)
(日本)	(4.9)	(4.0)	(3.9)
(欧州)	(3.3)	(1.4)	(2.4)
開発途上国	5.6	4.6	3.8
共通	5.5	3.1	3.0

<技術革新と国際分業>

- 電子、新素材、生命工学など、先端技術の飛躍的な発展が予想され、特に高度技術情報産業は90年代以後先進国の主力産業に登場する展望である。
- 一方、先端技術分野での先進国と開発途上国間の技術格差が拡大し、開発途上国間の技術及び輸出市場確保のための競争はますます熾熱になる展望である。

産業構造の変化展望

	比較優位産業分野
○ 先進国	知識、情報集約産業などソフト産業、宇宙産業、生命工学及び新素材産業など先端技術産業
○ 新興工業国	機械、電子など技術及び技能集約的組立加工産業、装飾産業
○ 後進国	労働集約的軽工業、単純重工業

<貿易環境>

- 先進国の産業構造調整が遅れることにより、開発途上国に対する保護主義傾向は持続するが、経済成長の回復で世界貿易量は年平均4.5～5%の増加が

会開発需要を需要に拡大供給する。

第4に、労使間の健全な協力関係の安定、勤怠節約する消費生活の合理化などには、国民各界各層が能動的に参加し、問題を解決していく環境を造成しなければならぬ。

(3) 対内外環境の展望

イ. 世界経済環境

<経済成長>

- 世界経済は過去50年代や70年代のような高い成長は期待できぬが、第2次石油危機以後の沈滞期から次第に回復して、計画期間中平均3%の安定成長が持続する展望である。
- 米国は安定景調定率による緊縮緩和と、投資及び耐久財消費需要の増加によって年平均3%の成長を示し、日本は輸出及び先端産業部門で設備投資が好調、先進国のうち最も高い成長を維持すると予想され、開発途上国も、アジア・太平洋地域を中心に高い成長を示し、共通国家では6%を上回る中共の成長が自立をつかて、全般的に3%台の成長が予想される。
- 期間別では、世界経済は86年まで景気下降を示すが、計画期間前半(87～88)には回復して、後半(89～91)には再び成長率が次第に鈍化するとみられる。
- そこで韓国は輸出及び成長も計画前半期間には速い回復が可能とみられるが、この期間に突のある競争力を高める努力を強化し、89年以後の世界景気鈍化に備えなければならぬ。

予想される。

○ 米国は年平均5%の実質輸入増加が予想され、日本は開放力の加重と高い成長で7~7.5%の実質輸入増加が予想される。

一 世界貿易の中心が大西洋圏から太平洋圏に移動する趨勢が確実視され、共産國家の対外開放政策によって、対共産國貿易も伸びるとみられる。

○ 特に、中国は輕工業製品分野での輸出を本格化する反面、設備投資、電源開発事業などに要する機械、鉄鋼など資本財を中心に輸入が年平均6%以上増加すると予想される。

一 貿易秩序面では、ニューラウンドの妥結展望が不透明ななかで、GATTを中心とした多國間協定の役割が縮小し、双務主義と地域主義による協商傾向が増大する見通しである。

一 このよきな貿易環境に対処して、韓国経済は先進國に對する輸出増加を維持しながら、対開發途上國、對共産國輸出市場開拓の努力を強化し、特に輕工業分野の競争力確保を継続確保する努力が傾注されなければならない。

世界貿易量

	'70年代平均	'82 ~ '86	'87 ~ '91
世界	5.4	3.4	4.7
(米 國)	(5.7)	(7.5)	(4.3)
(日 本)	(7.3)	(4.8)	(7.2)

<物価と國際原資材価格>

一 先進國の継続的な緊縮基調と、原油をはじめ國際原資材價格の安定で、各國のインフレーションは現在の水準を維持すると予想される。

一 原油は需要が緩慢な増加にとどまるものと予想される反面、供給事情の何調によつて名目価格が86~87年に最低水準に達した故、毎年4~5%の上昇をみせるが、インフレを勘案した実質價格はあまり変化がないと予想される。

一 原資材價格は名目で86年まで低い水準が続くが、それ以後からは緩慢な上昇が予想される。

一 世界の輸入物価は、その間國際商品の價格上昇が相対的に沈滞したところから87年以後暴氣回復による需要の増大、在庫消尽などから計画期間中急激に上昇するものと予想される。

一 そのため韓國商品の輸出単価も80年代前半の下落勢から、計画期間中は年平均4%内外の増加が予想される。

<物価及び原資材價格>

	'70年代	'82 ~ '86	'87 ~ '91
先進國消費者物価	10.9	4.8	5.3
原油 物 價 上 昇	37.4	-4.3	4.3
(請求価格、ドル/バレル)	-	(26 内外)	(32 内外)
輸 出 単 價 上 昇	10.1	-0.1	3.8

(年平均、%)

<國際金利及びレート>

一 米國經濟の成長率持続にともなう資金需要の増加、中央銀行の緊縮基調堅持で米國の金利は現水準から小幅上昇した後、保合勢を示す見通しであり、ユーロ金利(3ヵ月物)は10%内外で維持する展望である。

一 先進國間の実質金利と、經濟成長格差が次第に縮小して、ドルの価値が漸進的に下落する展望である。

○ 米國の大膽な經常収支赤字にも拘らず、準備通貨としてのドル選好、米國の高金利、中央銀行の介入可能性などの要因でドル価値は86~87年には5~6%、88~89年には2~3%の緩慢な下落が展望される。

一 國際金利の急激な上昇はないので、韓國經濟の対外支払子負債の増加は緩慢になるが、外債を健全化して金利変動の影響を減らす努力は続けなければならない。また、ドル価値の下落はレート運用の弾力性を増加させる一方、

国際金利及びドル貨価値

	(年平均、%)					
	'84	'85	'86	'87	'88	'89 ~ '91
ドル金利(3ヵ月物)	10.8	8.8	10.9	11.1	11.1	9.6
ドル価値	7.1	-3.3	-5.4	-2.3	-2.3	0.1

米圏以外の地域に対する輸出増加に相対的に有利な環境を造成する展望である。

ロ. 国内要因

<人口及び人口構造の変化>

- 第5次計画期間中年平均1.53%であった人口増加率は、第6次計画期間中出生率水準が低下して1.35%になり、91年の人口は4,469万人に達すると展望する。しかし、経済活動人口は参加率が高く、第5次計画期間中1,699万(年平均26万人)増加から第6次計画期間中には2,222万(年平均37万人)の増加を示すものと展望する。
- 平均寿命が84年の68歳から91年には70歳に延長されるので、人口の高齢化が進み、65歳以上の人口比が91年に4.8%、2000年には6.2%と高くなり、中高齢労働力人口も継続増加するとみられ、女性の社会進出拡大で女性経済活動人口が相対的に伸びる展望である。
- 中高校進学率が高くなるに従い、中卒以下非進学者の絶対人数が減少する反面、高卒非進学者と大卒者が継続増加する展望で、特に81年卒業生削減実施で85年以後大卒者の供給が拡大すると予想される。

<消費構造の変化>

- 所得水準が向上して平均勤労時間が減少し、余暇に対する需要が漸次増加すると予想され、都市と農村間・所得階層間の日常消費水準の格差も次第に緩

和すると展望される。

- 1人当り国民所得が3,000ドル台に到達してカラー-TV、冷蔵庫、乗用車など耐久消費財に対する需要と住居費、文化費に対する支出が急増する反面、家計消費支出のうち飲食費が占める比重は次第に減るとみられる。

民間消費支出構成比推移

(%)

	'81	'84	'91	'85 ~ '91 年平均増加率
飲食料	47.7	43.9	37.3	6.7
住居	10.1	10.9	12.4	1.2
文化	22.6	24.7	29.9	2.3
耐久消費財	4.5	5.0	6.4	1.3
その他	15.1	15.5	14.0	7.5
合計	100.0	100.0	100.0	9.2

- 1人当りの米消費量が減少(85年128.7→91年111.9kg/年)して、米の総消費が現在より減少し、穀物以外の食品及び加工食品の消費は増加して食品消費構造の変化が予想される。

<生活便益施設及び福祉向上に対する需要増大>

- 所得の相対的配分に対する関心が高くなることにより、勤労者の賃金引上げ要求が増大し、水、住宅、医療及び教育など、国民基本需要の質的向上と、道路、通信など生活便益施設に対する需要も増大する展望である。

<地域間均衡開発要求増大>

- これまで高成長の過程で惹起した大都市人口及び経済活動集中現象は、国民経済に集積の利益よりは住宅難、交通難など大都市問題の解決のための社会的費用を上昇させ、経済的に非能率を招来させて、首都圏以外の地域から均衡開発への要求が増大すると予想される。

2. 計画の基本目標と重点推進課題

- 87年から地方自治制が段階的に実施されて、地域住民の自主的で自発的な参加欲求が増大して地域経済活性化、都市と地方間の生活便宜施設の均衡ある拡充要求が増大する展望である。

<技術開発投資需要の増大>

- 買金アップと勤務時間短縮の要求が強くなり、自動化、省力化投資の需要が増加して、技術変化の速度（Technology Life-Cycle）が一そり速くなると展覧され、技術開発投資への需要も大きく増大するとみられる。

<オリンピックの開催>

- 88オリンピック大会の開催を契機に韓国国際社会での地位が向上し、韓国経済に対する対外信用も高くなる。
- オリンピック関連施設投資の適正な増加は、経済活力を高める契機になり、オリンピック関連産業も輸出市場開拓のための本格的な契機をつくることになる。
- あわせて国民意識も先進化、国際化され、先進国民としての矜持と自覚感が鼓吹される一方、秩序意識も大きく高揚する。

(1) 第6次計画の基本目標

イ. 2000年代先進国社会実現の未来像

- 第6次計画は、2000年代に韓国が具現しようとする次のような未来像に向う実践計画でなければならぬ。

<活力と余裕ある社会>

- 所得と消費が先進国水準に接近し、住宅と生活環境が改善され余裕ある文化生活を享有
- 民間の創造と経済的活力を基盤に政治・外交・経済・社会・文化の分野でアジア・太平洋時代の主役を担当

<正義と安定した社会>

- 個人の能力と努力に応じた社会的報酬が与えられ、分配改善を通じ社会的公平を高める。
- 厚い中産層が形成され、国民大多数を疾病・失業など社会的危険から保護。

<地域間・部門間・均衡発展した社会>

- 都市と農村間の所得と生活水準の格差が緩和され、教育・医療・住宅・文化など生活環境を地域間均衡に発展
- 政治・経済・社会・文化・意識など各部門を均衡に発展

ロ. 第6次計画の基本目標

- 第6次計画は、これまでの<安定>の恒久的定着を基本前提にして、<能率>と<公平>の向上に重点を置く。

一 第6次計画は、「自力成長の土台で福祉社会建設」を基本目標にして、次の4つの重点課題を暫定的に設定する。

第1、自主と開放、能率と合理性を基盤にした「経済社会の制度発展と基本秩序の定着」

第2、地域別特性にあった産業発展と、生活便益施設の均衡ある拡充で「活力ある地域社会を発展」

第3、厚い中間層の形成と、低所得層の生活向上で「社会的、衡平と福祉の増進」

第4、「産業構造の改組と技術立国の実現」で産業能率を面的的に高める。

(2) 計画の基本戦略と重点推進課題

〈計画は以上の暫定目標を達成するために提示された次の主要課題を検討し、その解決のための課題別政策方向と政策手段を講究しなければならぬ〉

1. 経済社会の制度発展と基本秩序の定着
 - 能率と合理性を基礎にした経済社会各部門の制度を改善し、
 - 自主、競争及び開放に立脚した市場経済秩序を定着させることにより、民間の活力を基に成長潜在力が自然に培養・発揮できる「経済運用の土台」をつくり、
 - 均等な機会とともに努力に応じた報償が与えられる「公平な競争の準則」を確立することにより、社会的配分に対する正当性と社会各階層間の相互信頼を高める。
 - ① 自主と責任に立脚した経済倫理確立のため
 - 第1に、不動産投機など各種不労所得の機会を根源的に封鎖するため制度を進展させ、特に、土地の所有概念を利用概念に転換するため土地公共概念を拡大し、土地利用及び取引秩序を新たに定立
 - 第2に、露示的消費性向の是正と貯蓄制度の発展で国内貯蓄を増大させ、

実用主義的な消費生活気風を振作

第3に、労働間の共同体意識と自主的合意を基礎にした健全で生産的な労働関係を定着

第4に、大企業と中小企業間の合理的な協業及び分業関係が形成されるよう、公正な取引秩序を確立

第5に、税法をわかりやすく改め、納税義務額算出方式を単純明確にし、徴税者と納税者間の摩擦を解消

第6に、消費者保護の組織化と、商品の品質強化を通じて取引の基本秩序を確立

② 競争促進を通じた経済能率向上のため

第1に、公益目的上避けられない場合を除いては、規制行政的な政府機能は行政中心に大幅転換し、特に新たな企業の設立や工場の新増設と関連した認許可及び登録制度許可及び登録制度を大幅簡素化

第2に、現行特定制業育成法または振興法を統・廃合整備して、育成名目の不必要な行政規制要素を除去

第3に、金利自由化の幅を漸進的に拡大、銀行保有資産の健全化誘導と、金融機関内部経営の自主性を保障して段階的な金融自由化を実現

第4に、流通部門の競争制限慣行を是正し、工業品及び部品の標準化、規格化を促進して載水産物の流通体系を先進圏化

③ 対外開放と国際化を効率的に推進するため

第1に、輸入自由化は当初計画通り推進し、88年まで先進国水準に高めるが、国内産業の競争力補強を通じて、副作用と衝撃を最少限化できるよう輸入自由化予示制、調整関税及び輸入監視制度など補完対策を講究

第2に、外為及び資本自由化は国際収支、産業の競争力、金融資本市場などの諸環境を勘案して漸進的な推進戦略を樹立

第3に、世界貿易秩序の再編と「アジア・太平洋経済圏」の形成に対処して、双務間貿易摩擦の事前予防のための対外交渉能力を高め、多国籍貿易秩序再編のためニュージーランドに積極参加

第4に、対開発途上国経済協力を積極推進し、東欧圏・中共などの開放政

策に能動的に対応する方策を講究

④ 市場経済秩序の定着に相応する政府の役割を明確にし、簡素で能率的で信頼ある政府像を定立するため

第1に、類似重複機能は統廃合し、民間が担当できる機能は果敢に民間に移譲するよう政府組織を再編成

第2に、財政規模の増加は経常成長率水準を維持し、計画期間中総財政収支の均衡達成に注力するが、財政の景気調整機能を強化する一方、社会間接資本及び福祉投資など国民生活向上のため突出比重を増大

第3に、公務員の専門化教育と職級別再教育を強化し、公務員の待遇改善を通じた優秀人材確保方策を講究

第4に、政府の各種制度と施策が各都府に共通的に関連する事項が増大している趨勢に対処して、関係部処間に迅速で一貫性ある政策調整体系を確立

第5に、行政手続または公断行政を最大限具現し、政策決定過程での一般国民及び利害関係者の参加を拡大

第6に、政府統計の正確性と信頼性を高め、政府の各種資料と情報を最大限民間に公開して、政府の政策に対する国民の理解と協力を増進

ロ、活力ある地域社会の発展

○ 従来の国土開発及び首都圏人口分散の次元から脱皮して、地域開発全分野にわたり総合的に接近する。

○ 地域間均衡発展の主要内容になる国民生活基盤施設、産業及び社会間接資本民間経済支援要素及び地方大学を地域間均衡に拡充し

○ 地方自治制実施に応じて地方の経済、商工及び社会福祉行政機能を強化する。

① 従来のよりよきな首都圏分散政策だけでは地域間均衡発展に限界があるので、地域発展に對する積極的な誘因をつくるため

第1に、庁単位の2次行政官署を地方の大都市に移転するなど、中核官署機能を地方大都市（釜山、大邱、大田、光州）に分担

第2に、企業への地方誘致を支援するため税制・金融上の支援を強化し、特に地方金融を活性化

第3に、中央政府の各種認可及び助成行政機能を地方政府に移譲できるとり、地方行政機関の経済、商工、社会福祉行政組織と機能を拡大

第4に、高等教育の質的格差による首都圏集中を抑制するため、地方大学の奨学制度と教授優待措置を強化し、地方大学卒業者の就業機会を拡大するなど地方大学育成施策を発展

② 保健・医療、上下水道、道路舗装、通信、公園など国民生活基盤施設の地域間均衡拡充を図る。

③ 従来の京釜圏中心の国土利用構造を全国土に拡散し、各圏域別に均衡ある産業発展を誘導するため、産業立地及び道路、港湾など社会間接施設の均衡ある配座計画を樹立

④ 活力ある地方中小都市を育成し農村地域総合開発を推進するため

第1に、中小規模の地方工業団地を生活圏別に造成し、比較優位のある地方産業を育成して就業機会を拡大

第2に、村単位の農村開発方式を止めて、近隣中小都市と背後地の農村を統合した定住生活圏単位の開発を推進

第3に、主役生産主体の産業投資方式から、農村生活環境改善及び地域経済発展の総合開発方式に転換

ハ、社会的衡平を高め福祉増進

一 成長の恩恵が階層間にくまなく配分されるよう、社会開発を拡充して社会的衡平を高める。

○ 就業機会を拡大し、勤労条件を改善して勤労者の福祉を増進

○ 国民の最低生活を保障し、高齢・疾病など社会的危険に備える社会保険制度を充実

○ 零細民など経済的に苦しい階層の生活を向上させるため、公的扶助事業を改

修

○ 住宅・教育・保健医療など国民の基本的な生活需要の充足

① 就業機会の拡大と勤労者福祉増進のために、

第1に、持続的な成長で雇用機会を拡大し、職業訓練と生涯教育体制を強

第1に、構造的な不況産業は民間が自主的な判断によって整備することを原則とし、該当企業の自動努力を土台に合理化を促進し得る制度的装置を

第2に、重化学工業は、その投資基盤と受入潜在力が他の新興工業国に比べ相対的に強い点を最大限活用して、競争力を高める方策を

第3に、「産業発展民間協議会」を積極活用して、産業政策方向に対する政府と民間の共感帯形成を制度的に定着

② 企業経営の合理化を奨励するため、第1に、所有と経営を分離して株式の大衆化を促進し、専門経営者の参加を拡大する方策を

第2に、財閥企業は主力企業中心に専門化を促進する方策を

第3に、企業の借入経営傾向を抑制し、財源構造改善を促進するための税制・金融上の対策を

③ 技術革新を通じて産業の競争力を高めるため第1に、科学技術投資を91年まで国民総生産(GNP)対比2.5%水準に

高め、特に企業の技術開発投資を先進国水準の死出額対比2~3%水準に高めるより、

第2に、基礎科学研究などに対する政府の支援は大幅拡大し、大学、研究機関、企業等技術開発主体間の機能分担体系と、行政体系の再定立で投資の

効率を高める。第3に、先端産業は90年代以後韓国産業の中核になるので、これに備え

理・工系頂・博士を中心とした高級科学技術人力を面的に養成・確保する方策を

第4に、産業需要の変化に対応する技術開発を促進しながら、先端技術と現場技術を調和して

④ 多数の競争力ある中小企業が発掘され、輸出と成長を主導させるために第1に、中小企業に対する信用貸出と金融機会を拡大して、各種支援制度を

効果的に第2に、主要機械類、素材及び部品生産の中小企業を育成して、資本財輸

出して就業能力を高めると同時に、公共職業安定網を拡充

第2に、職種間、学歴間賃金格差解消に力を入れ、雇用の現実により最低賃金制の

第3に、企業での女性差別的雇用慣行を是正し、勤労基準法など関係法規上の女性関連規定の改善を

② 社会保険制度の拡充のために、第1に、地域医療保険を、要請条件の良い地域から漸次に拡大し、計画期

間中大多數の国民が医療保障の恩恵を受けられる方策を樹立

第2に、高齢人口の増加、核家族化傾向の拡大など環境の変化に備え、現行退職金制度の脆弱点を補完する方向で、計画期間中に国民年金制を

③ 零細民衆層の生活向上のための公的扶助の改善には、第1に、勤労能力がない者及び自宅保

第2に、勤労能力がある自宅保者に対する救済的な性格の事業は漸次縮小し、子女教育

④ 国民生活基本需要充足と質的な改善のため第1に、住宅投資の拡大と住宅小型化の促進で住宅供給を拡大し、住宅金融

第2に、上水道施設、道路創設などを拡充し、農・漁村地域の基本生活環

第3に、食品衛生基準を強化し、国民の栄養改善に努力する一方、健全な余暇生活を振作するための施策を

二、産業構造の改編と技術立派の実現

○ 新たな国際分業構造の変化に能動的に対処し得る国内産業構造の改編

○ 技術及び人力開発を通じた産業の全般的な競争力向上

○ 中小企業と農水産部門の生産性向上を支援して産業間均衡発展を図る。① 産業構造の合理化を効果的に推進するため

入代替を促進し、少量多品種の輸出支保体制を強化

⑤ 農漁村所得を増大し、食品の安定的供給能力を高めるため

第1に、国民栄養、食品消費構造変化趨勢にあった農水産物生産増産の調整を誘導

第2に、主穀増産及び価格支持などによる農家所得増大には限界があるもので、生産性向上と農外所得源の開発を通じて農家所得増大施策推進

第3に、種々の営農が広まるにつれて、農水産物価格安定と流通構造改善策を強化

第4に、農地制度を改善して営農規模の拡大を誘導し、農業機械化を促進して生産性を向上

第5に、漁業施設近代化、水産資源造成、漁業制度改善などを進めて水産物供給基盤を拡充し生産性を向上

⑥ 最近需要が急増している流通・情報などサービス産業の効果を増進するための施策を発展

3. 総量展望（暫定）

(1) 適正成長水準の選択

計画期間中経済成長率は年平均7%水準を維持し91年に国民総生産は1,500億ドル、1人当り国民総生産は3,500ドル水準を展望

<国内貯蓄による自力成長水準>

国内貯蓄率が84年の27.4%から91年には33.0%水準まで高くなることと推定し、国内貯蓄だけで投資する場合成長可能水準は7%。

(86年から国際収支赤字なしに自力成長が可能になり、これで対外債は減少)

<需要の面での成長可能水準>

世界貿易量の増加推移を勘案して、輸出は計画期間中年平均9%の増加増加が展望され、消費5~6%、固定投資8%水準の増加を前提にしたとき7%水準の成長が可能

適正成長水準

(年平均, %)

経済成長率	'70年代	'82~'86	'87~'91
総投資率	8.0	7.2	7.0
国内貯蓄率	2.85	2.89	3.1.1
海外貯蓄率	2.23	2.65	3.1.5
総消費	6.4	2.4	-0.4
(民間)	6.8	5.2	5.6
(政府)	(7.0)	(5.5)	(5.6)
固定投資	1.27	10.1	8.0
商品輸出	2.3.2	8.9	9.0
商品輸入	1.4.2	7.9	8.3
雇用増加率	3.5	1.8	2.3
(万人)	(40)	(26)	(36)
経済活動人口増加率	3.5	1.7	2.2
(万人)	(43)	(26)	(37)
失業率	4.1	4.1	4.0

<経済活動人口吸収のための必要成長水準>

失業率を4%水準で安定させるためには、就業増加率が2.3%水準(年間36万人)を維持しなければならず、この場合、生産性増加4~5%を勘案すれば必要成長率は7%水準。

(2) 国際収支均衡基調の定着と純外債の縮小

- 一 輸出は年平均1.3%増加し91年に590億ドルと展望
- 一 韓国輸出の世界市場占有率は84年の1.5%から91年には2%水準に高くなる。
- 一 世界貿易量増加を勘案して、輸出物量は年平均9%増加展望

(年平均, %)

	'70年代	'82~'86	'87~'91
世界貿易量	5.4	3.4	4.7
輸出物量	23.2	8.9	9.0

- 一 輸出単価上昇は計画期間中先進国消費者物価上昇が5%水準を越え、特にドル価値下落を反映して4%水準持続を展望
- 一 經常収支は貿易収支を中心に86年から均衡基調定着
- 一 經常収支均衡基調の定着で、純外債は85年の342億ドルから47億ドル縮小した295億ドル水準を展望

国際収支及び純外債展望

(億ドル)

	'85	'86	'87	'88	'89	'90	'91
經常収支	-7	0	2	5	10	18	22
貿易収支	-3	3	5	8	13	21	25
輸出	285	319	361	411	468	528	590
輸入	288	316	356	403	455	507	565
貿易外収支	-9	-8	-8	-8	-8	-8	-8
純外債	452	466	480	493	504	509	514
対外負債	110	121	136	152	171	193	219
純外債	342	345	344	341	333	316	295

(3) 物価安定の持続

- 一 卸売物価は計画期間中年平均2~3%、GNPデフレーターは3~4%水準を展望
- 一 ドルの弱勢で原資材のドル表示価格が上昇するが、対米レート及び原油価格の安定で輸入物価は計画期間中3%水準を展望
- 一 競争促進施策拡散、流通構造の改善及び消費者保護行政の活性化で恒久的物

値安定基盤の整備

(年平均、%)

	'70年代	'82～'86	'87～'91
外為レート	6.9	5.7	-1.1
輸入単価	12.9	-2.0	3.7
製造業労賃単価	18.2	5.7	2～3
GNPデフレター	20.3	4.7	3～4
卸売物価	18.3	1.7	2～3

(4) 雇用機会の拡大

- 計画期間中出産力が2人に低下し、人口増加率は第5次計画期間中の1.53%から91年には1.3%に鈍化
- 経済活動参加率は女性の経済活動参加が高くなり、85年の54.5%から91年には55.8%に高められ、経済活動人口も計画期間中毎年37万人増加の展望
- 農林漁業部門の就業人口は減少する反面、製造業の雇用比重は23%から24%、第3次産業の雇用比重は51%から55%に高くなる展望
- 7%水準の成長を遂げる場合、雇用は毎年36万人増加し失業率は現在の4%水準を維持

(1,000人、%)

	'85	'86	'91	87～91年平均	
				増加	増加率
総人口 (人口増加率)	41,176 (1.52)	41,785 (1.48)	44,690 (1.30)	581	1.35
14歳以上人口	28,490	29,189	31,990	540	1.85
経済活動人口 (参加率)	15,525 (54.5)	15,996 (54.8)	17,856 (55.8)	372	2.22
就業人口	14,905	15,338	17,141	361	2.25
・農林漁業 (構成比)	3,702(24.8)	3,631(23.7)	3,337(19.5)	-59	-1.68
・鉱工業 ()	3,598(24.1)	3,704(24.1)	4,303(25.1)	120	3.04
(製造業)	3,452(23.2)	3,555(23.2)	4,139(24.1)	117	(3.09)
SOC及びその他 (構成比)	7,605(51.0)	8,003(52.2)	9,501(55.4)	300	3.49
失業人口 (失業率)	620 (4.0)	658 (4.1)	715 (4.0)	11	

<暫定総量指標>

イ. 主要指標要約

	単 位	1984	'85	'86	'87	'88	'89	'90	'91	1987~91 年平均(%)
国民総生産(経 常)	10億ウヅ	65344.9	71680.1	78998.7	87650.6	97340.9	107800.1	119160.1	131717.2	10.8
“ (80年価格)	“	49179.7	52376.3	56042.7	60077.8	64463.4	68975.9	73666.2	78675.5	7.0
国民総生産(経 常)	億ドル	811	821	878	990	1,132	1,268	1,402	1,550	12.0
“ (80年価格)	“	809	862	922	988	1,060	1,135	1,212	1,294	7.0
(成 長 率)	%	(7.6)	(6.5)	(7.0)	(7.2)	(7.3)	(7.0)	(6.8)	(6.8)	(7.0)
総 投 資 率	%	29.9	29.8	30.1	30.4	30.7	31.1	31.3	31.8	31.1
国 内 貯 蓄 率	“	27.4	28.4	29.3	30.0	30.7	31.5	32.2	33.0	31.5
海 外 貯 蓄 率	“	2.3	1.5	0.8	0.3	0.0	-0.4	-1.0	-1.1	-0.4
1人当りGNP(経 常)	ドル	1998	1994	2101	2337	2634	2913	3178	3467	10.5
“ (80年価格)	“	1994	2093	2206	2332	2468	2606	2747	2896	6.6
誌 入 口	1,000人	40,578	41,176	41,785	42,383	42,965	43,541	44,117	44,690	1.4
GNPデフレーター	上昇率, %	4.0	3.0	3.0	3.5	3.5	3.5	3.5	3.5	3.5
卸 売 物 価	“	0.7	1~2	1~2	2~3	2~3	2~3	2~3	2~3	2~3
経 常 収 支	億ドル	-14	-7	0	2	5	10	18	22	
貿 易 収 支	“	-10	-3	3	5	8	13	21	25	
輸 出	“	2634	285	319	361	411	468	528	590	13.1
輸 入	“	2737	288	316	356	403	455	507	565	12.3

ロ. 産業別国民総生産

('80年価格: 10億ウヅ)

	'84	'85	'86	'87	'88	'89	'90	'91	'87~'91 平均増加率
国 民 総 生 産	49179.7	52376.3	56042.7	60077.8	64463.4	68975.9	73666.2	78675.5	7.0
[増 加 率]	[7.6]	[6.5]	[7.0]	[7.2]	[7.3]	[7.0]	[6.8]	[6.8]	
○ 農 林 漁 業	7431.3 (15.1)	7654.2 (14.6)	7883.9 (14.1)	8120.4 (13.5)	8364.0 (13.0)	8614.9 (12.5)	8873.4 (12.0)	9139.6 (11.6)	3.0
○ 非 農 林 漁 業	41748.3 (84.9)	44722.1 (85.4)	48158.8 (85.9)	51957.4 (86.5)	56099.4 (87.0)	60361.0 (87.5)	64792.8 (88.0)	69535.9 (88.4)	7.6
・ 鉱 工 業	15864.5 (32.3)	17165.0 (32.8)	18608.2 (33.2)	20209.9 (33.6)	22010.1 (34.1)	23864.8 (34.6)	25853.7 (35.1)	28010.1 (35.6)	8.5
┌ 鉱 業	692.1	733.3	763.4	794.7	828.1	861.2	894.8	929.7	4.0
└ 製 造 業	15172.4 (30.9)	16431.7 (31.4)	17844.8 (31.8)	19415.2 (32.3)	21182.0 (32.9)	23003.6 (33.4)	24958.9 (33.9)	27080.4 (34.4)	8.7
・ 建設及び電気ガス水道	5404.2 (11.0)	5675.7 (10.8)	6112.7 (10.9)	6589.5 (11.0)	7110.1 (11.0)	7650.5 (11.1)	8216.6 (11.2)	8824.6 (11.2)	7.6
・ サービス業	20479.6 (41.6)	21881.4 (41.8)	23437.9 (41.8)	25158.0 (41.9)	26979.2 (41.9)	28845.7 (41.8)	30722.5 (41.7)	32701.2 (41.6)	6.9

○ ()はGNP対比, %

八、国民総生産に対する支出

(経常価格：10億ウソ)

	'84	'85	'86	'87	'88	'89	'90	'91
国民総生産	65,344.9	71,680.1	78,998.7	87,650.6	97,340.9	107,800.1	119,160.1	131,717.2
総消費	47,413.9 (72.6)	51,352.1 (71.6)	55,883.0 (70.7)	61,344.9 (70.0)	67,460.4 (69.3)	73,848.8 (68.5)	80,756.2 (67.8)	88,312.4 (67.0)
政 府	7,020.5	7,666.5	8,412.1	9,362.9	10,430.9	11,576.9	12,824.4	14,206.3
民間	40,393.5	43,685.5	47,470.9	51,982.0	57,029.5	62,271.9	67,931.8	74,106.2
総投資	19,591.9 (29.9)	21,393.1 (29.8)	23,754.7 (30.1)	26,606.6 (30.4)	29,863.2 (30.7)	33,526.3 (31.1)	37,264.9 (31.3)	41,934.3 (31.8)
(固定資産形成)	[20,226.5]	[22,265.4]	[24,623.7]	[27,388.9]	[30,492.7]	[33,854.2]	[37,481.9]	[41,498.3]
総輸出	27,120.9	31,279.6	35,730.0	39,648.0	43,619.2	48,790.0	54,689.0	60,792.0
貿易	21,195.9	24,880.5	28,710.0	31,948.5	35,346.0	39,780.0	44,880.0	50,150.0
貿易外	5,925.0	6,399.1	7,020.0	7,699.5	8,273.2	9,010.0	9,809.0	10,642.0
総輸入	28,631.6	32,344.7	36,369.0	39,948.9	43,602.0	48,365.0	53,550.0	59,321.5
貿易	22,061.2	25,142.4	28,530.0	31,506.0	34,658.0	38,675.0	43,095.0	48,025.0
貿易外	6,570.4	7,202.3	7,839.0	8,442.9	8,944.0	9,690.0	10,455.0	11,296.5
海外貯蓄	1,510.7 (2.3)	1,065.1 (1.5)	639.0 (0.8)	300.9 (0.3)	-17.2 (-0.0)	-425.0 (-0.4)	-1,139.0 (-1.0)	-1,470.5 (-1.1)
国内貯蓄	17,931.0 (27.4)	20,328.1 (28.4)	23,115.7 (29.3)	26,305.7 (30.0)	29,880.4 (30.7)	33,951.3 (31.5)	38,403.9 (32.2)	43,404.8 (33.0)
(限界貯蓄性向)	[49.38]	[37.84]	[38.09]	[36.09]	[36.89]	[38.92]	[39.20]	[39.83]

()はGNP対比、%

二、国際収支

(経常価格：100万ドル)

	'84	'85	'86	'87	'88	'89	'90	'91
経常収支	-1,371	-700	0	200	500	1,000	1,800	2,200
貿易収支	-1,036	-300	300	500	800	1,300	2,100	2,500
輸出	26,335	28,500	31,900	36,100	41,100	46,800	52,800	59,000
輸入	27,371	28,800	31,600	35,600	40,300	45,500	50,700	56,500
貿易外収支	-876	-900	-800	-800	-800	-800	-800	-800
受 入	7,316	7,300	7,800	8,700	9,600	10,600	11,500	12,500
支 払	8,192	8,200	8,600	9,500	10,400	11,400	12,300	13,300
移 転 収 支	541	500	500	500	500	500	500	500
長期資本収支	2,000	900	500	500	500	300	0	0
基礎収支	629	200	500	700	1,000	1,300	1,800	2,200
短期資本収支	-758	-	-	-	-	-	-	-
誤差及び漏落	-889	-600	-600	-600	-600	-600	-600	-600
総合収支	-1,018	-400	-100	100	400	700	1,200	1,600
金融借入	1,846	500	300	300	200	200	0	0
外貨保有高増減	740	100	200	400	600	900	1,200	1,600
(外貨保有高)	(7,648)	(7,750)	(7,950)	(8,350)	(8,950)	(9,850)	(11,050)	(12,650)
(外貨保有高/経常支給)	(2.15)	(2.09)	(1.98)	(1.85)	(1.77)	(1.73)	(1.75)	(1.81)

ホ. 人口と雇用

(1,000人,%)

	'84	'85	'86	'87	'88	'89	'90	'91	'87-'91 増加率
総人口	40,578	41,176	41,785	42,383	42,965	43,541	44,117	44,690	1.35
14歳以上民間人口	27,793	28,490	29,189	29,817	30,424	30,976	31,489	31,990	1.85
経済活動人口	14,984	15,525	15,996	16,401	16,797	17,164	17,512	17,856	2.22
(参加率)	(53.9)	(54.5)	(54.8)	(55.0)	(55.2)	(55.4)	(55.6)	(55.8)	
就業人口	14,417	14,905	15,338	15,752	16,142	16,493	16,811	17,141	2.25
(構成比)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	
農林漁業	3,909	3,702	3,631	3,570	3,511	3,452	3,394	3,337	-1.68
	(27.1)	(24.8)	(23.7)	(22.7)	(21.8)	(20.9)	(20.2)	(19.5)	
鉱工業	3,493	3,598	3,704	3,818	3,946	4,064	4,182	4,303	3.04
	(24.2)	(24.1)	(24.1)	(24.2)	(24.4)	(24.6)	(24.9)	(25.1)	
製造業	3,351	3,452	3,555	3,66	3,791	3,906	4,021	4,139	3.09
	(23.2)	(23.2)	(23.2)	(23.3)	(23.5)	(23.7)	(23.9)	(24.1)	
社会間接資本 及びその他	7,015	7,605	8,003	8,364	8,685	8,977	9,235	9,501	3.49
	(48.7)	(51.0)	(52.2)	(53.1)	(53.8)	(54.4)	(54.9)	(55.4)	
失業人口	567	620	658	649	655	671	701	715	1.68
(失業率)	(3.8)	(4.0)	(4.1)	(4.0)	(3.9)	(3.9)	(4.0)	(4.0)	

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